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# Building Indigenous Capacity to Evaluate Interventions to Improve Health Promotion: A Case Study in HIV Prevention in the Northern Province, Papua New Guinea

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## Abstract

There are increasing requests for strong evaluations of health promotion programs by development partners and for many types of aid delivery mechanisms. The purpose of these evaluations is to measure the effectiveness of the health promotion programs. With the increasing demand for reviews and evaluation of interventions, it is crucial to build the capacity of local staff responsible for implementing health interventions at community level.

Informed by the theory-based approach to evaluation, this research investigated the facilitators and barriers for indigenous program staff and managers to conduct realistic, reliable and valid theory based evaluations in Papua New Guinea (PNG). It has used the HIV prevention programs among community-based organisations (CBO), as a case study of health promotion programs. The underlying assumption of the study is that in order to implement health promotion programs, health behaviour change theories and models should be explicitly taught to indigenous implementers of health promotion programs. This is because health behaviour change theories determine the outcomes of primary health interventions, and if the theories are not understood by the implementers, the trends in healthy lifestyle practices among intervention users will be difficult to objectively observe over time.

This research was conceived based on my own experience through my work in HIV primary prevention in M&E with non-government organisations (NGOs). I had experienced firsthand some of the issues discussed in this thesis and was driven to understand why CBOs do not deliver outcomes-based results and how to address this gap. The aim of the study was to investigate the facilitators and barriers for indigenous program staff and managers to conduct realistic, reliable and valid evaluations for health promotion programs in PNG. A model of indigenous capacity building for theory-based evaluation is developed in this thesis. The model proposes that at the community level, health promotion interventions should begin with an explicit behaviour change theory which all parties should understand and develop together to design theory-based evaluations for health interventions.

The study was conducted in the Northern Province of PNG. There were three phases of field based data collection. The first phase was a situational assessment which took place between April and June 2011; the second phase took place between April and May 2012, while the third phase was conducted in January 2013. The field study used qualitative methods and a convenience sampling method was used to recruit the study participants. A total of 54 study participants were recruited for the study. All study participants were staff of HIV and STI prevention implementing organisations in the study location.

The study found limited capacity within the HIV organisations to evaluate HIV prevention programs. Several factors contributed to this limited M&E capacity including: the short life span of prevention programs, non-inclusion of M&E mechanisms, weak collaboration between organisations, a lack of leadership in M&E, and the overall weak M&E systems. Findings also show that there were facilitators available that could potentially build capacity in program evaluation among indigenous staff. These facilitators include a change in intervention strategy from population-based to targeted intervention, the comprehensive utilisation of the national M&E framework that guides the management of HIV and AIDS information, and the need for continuously gathered information to inform program improvement.

In conclusion, the research makes a significant contribution to building capacity in program evaluation. Literature shows that health behaviour change theories are usually developed at the top and introduced to the community level implementers of health programs. My study proposes an approach in which health behaviour change theories should be explicitly introduced at the community level and that the competency of evaluation among indigenous evaluation staff should be built and mentored further into information use and dissemination.

**Declaration by author**

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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**Contributions by others to the thesis**

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None

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program evaluation, indigenous, capacity building,  behaviour change theories, hiv/aids

**Australian and New Zealand Standard Research Classification (ANZSRC)**

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1199: Other Medical and Health Sciences, 5%

1699: Other Studies in Human Society, 5%

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AES | Australasian Evaluation Society |
| ART | Anti-retroviral treatment |
| AIDS | Acquired immune deficiency syndrome |
| AusAID | Australian Government Overseas Aid Program |
| BCC | Behaviour change communications |
| CC | Community conversations |
| CDC | Centers for Disease Control |
| CBO | Community-based organisations |
| ECB | Evaluation capacity building |
| FBO | Faith-based organisations |
| FGD | Focus group discussions |
| FSW | Female sex workers |
| GIPA | Greater involvement of people living with HIV and AIDS |
| HBC | Home based care |
| HIV | Human immuno-deficiency virus |
| HR | Human resource |
| HRSS | High risk settings strategy |
| ILOAIDS | International Labour Office on HIV/AIDS and the World of Work |
| KABP | Knowledge, attitude, behaviour and practice |
| KII | Key informant interviews |
| LFA | Logical framework approach |
| LLG | Local level government |
| M&E | Monitoring and evaluation |
| MARPS | Most at risk populations |
| MSC | Most significant change |
| MSM | Men who have sex with men |
| NAC | National AIDS Council |
| NACS | National AIDS Council Secretariat |
| NCD | National Capital District |
| NDoH | National Department of Health |
| NHATU | National HIV and AIDS Training Unit |
| NHASP | National HIV/AIDS Support Project |
| NHS | National HIV and AIDS Strategy |
| NGO | Non-government organisation |
| PAC | Provincial AIDS Council |
| PhD | Doctor of Philosophy |
| PHO | Provincial Health Office |
| PI | Principal Investigator |
| PLHIV | People living with HIV |
| PNG | Papua New Guinea |
| PNGIMR | Papua New Guinea Institute of Medical Research |
| ProMEST | Provincial Monitoring and Evaluation Surveillance Team |
| RAC | Research Advisory Committee |
| RCT | Randomised control trial |
| STI | Sexually transmitted infections |
| TBE | Theory-based evaluation |
| UNAIDS | Joint United Nations Program on HIV/AIDS |
| UNESCO | United Nations Educational, Scientific, and Cultural Organization |
| VCT | Voluntary counselling and testing |
| WHO | World Health Organization |

## Chapter 1. INTRODUCTION

There is an increasing emphasis on the need for strong evaluations of health programs.(1) The process of evaluation is crucial in all public health programs, as it judges the value of the health interventions implemented and assesses in planning follow on activities. In a health promotion program, an evaluation will determine the extent to which a program has achieved its desired health outcomes, and will assess the contribution of the different processes that are used to achieve these outcomes.(1) There are different views on what represents value in a health promotion program, how success should be defined and what should be measured. For instance, policymakers and finance managers would judge the value of a health promotion program by its financial investment and the achievement of the health outcome over a short period of time. Health practitioners would view a health promotion program as being successful if it accomplished health outcomes in real life situations, while a community would judge the value of a health promotion program by the process used to conduct the program, particularly if the program involved participatory methods and addressed priorities that the community identified.

The view taken in this study is that of an academic researcher with an interest in building evaluation capacity among local implementers of health promotion programs. In addition, I had a key interest in the area of program evaluation. As such, the gaps in program evaluation among CBOs are explored in the study. Through the process of evaluation I perceive the success (or failure) of a health promotion program in order to contribute to the improvement of health promotion practices.(1) The success of any health intervention is usually defined in terms of the effects identified through study designs measured through validated findings, and where the intervention outcomes are theoretically based. This thesis argues that many community-based health promotion programs are not evaluated systematically, due to the lack of local capacity. In addition, many of the health interventions in developing countries are not based on measuring behaviour changes, because implementers of the programs are not working with specific health behaviour change theories to guide the interventions. Therefore, this thesis suggests that if behaviour change theories are developed in partnership with the implementers of the programs, the evaluation of health interventions would become easier to understand and implement. This study used human immuno-deficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) prevention, as a case study in health promotion programs. Most of the

literature reviewed was related to evaluation and capacity building in HIV prevention interventions, particularly at the primary prevention level.

## 1.1. The Context

There is a need to evaluate health promotion programs to: (i) collect evidence on the effectiveness of a program; (ii) be accountable to stakeholders (funders, clients, volunteers, staff or community); (iii) identify ways to improve a program; (iv) determine what works, what does not work and why; (v) assess the needs of the target population; (vi) improve the usefulness of program materials; (vii) compare programs with other programs; and (viii) conduct cost-benefit analysis.(202, p.6) In the past, program evaluation was used mainly to determine whether or not a program was effective. More recently, program evaluation is often used to ensure continuous quality improvement.(202) Through the process of evaluation, health promotion programs can ensure quality control and improvement in health interventions around the world.

A common criticism of the traditional program evaluation approach is that the majority of program evaluations are conducted by external consultants or outside researchers for the purpose of accountability rather than for program improvement.(2) These evaluations are driven by donor criteria and demands for accountability, rather than for local needs and long-term interest in program improvement. Other critics argue that external evaluators and researchers are unfamiliar with the challenges of the programs they evaluate, and therefore tend to produce impractical information for program improvement (3) due to time and budget constraints.(4) Many external evaluators are on short-term contracts and therefore do not follow the progress of the programs.(2) Moreover, systematic monitoring usually ends when the external evaluator leaves the project site. The lack of local capacity for evaluation creates considerable gaps in the data relating to the overall effectiveness of behaviour change interventions in HIV and STI prevention. Evaluation also provides feed-back information to improve programs. Evaluation is a cycle: one evaluation becomes a formative evaluation for the next health promotion cycle.(5) Thus, building local capacity in evaluation is vital for the continuity of health promotion programs such as HIV prevention.

The majority of HIV prevention campaigns in PNG (6,7) and elsewhere in the world (8) are implemented by community-based organisations (CBO), but many CBOs lack

the capacity to plan, implement and evaluate the success of their programs. A combination of factors have contributed to the lack of planning and implementation of program evaluation; these factors include difficulties in conceptualising and designing appropriate evaluations; difficulties developing or using evaluation tools; difficulties collecting or analysing evaluation data; challenges in staffing, challenges in setting clear program goals and objectives; negative attitudes toward evaluation, and low levels of funding support.(9-11) Little assistance has been provided by the funders and policymaking agencies to enhance their capacity to evaluate their activities.(8,10) In addition, the lack of involvement from stakeholders in program evaluation results in missed opportunities for systematic evaluation to guide sustainable program improvement, based on local knowledge and interest.(2)

The issue of inadequate evaluation capacity among community level organisations has generated an interest in participatory evaluation (2,12) and empowerment evaluations (13) among community-level organisations. Participatory evaluation is an approach to program evaluation. It provides for the active participation of those involved in a program, such as service providers, partners, beneficiaries, and any other interested parties. All the parties involved make collective decisions on how to frame the questions used to evaluate the program, and collectively decide on how to measure the outcomes of the program.(12,14) Empowerment evaluation is an evaluation approach designed to help communities monitor and evaluate the performance of their own program interventions. It is used in comprehensive community initiatives as well as small-scale settings, and is designed to help groups accomplish their goals. Empowerment evaluation is the use of evaluation concepts, techniques and findings to foster improvement and self-determination.(15) In addition, empowerment evaluation is an evaluation approach that aims to increase the likelihood that programs will achieve their desired results by building the capacity of program stakeholders to plan, implement, and evaluate their own programs.(13,16) As such, participatory and empowerment evaluations have been designed purposely to both empower staff and develop skills in measuring health behaviour changes within the target population. From a health behaviour change perspective, efforts to build capacity in participatory evaluation are only good if they teach and support skills in measuring and translating information that produces health behaviour change outcomes.(17)

Capacity building at CBO levels has focused mainly on the implementation of programs.(10,18) Many capacity building workshops train staff on how to deliver the actual interventions. For example, if the main activity is education and awareness, workshop topics would include information about the disease of interest; i.e. the causes, the signs and symptoms, prevention and treatment. The capacity building workshops also focus on how to present information to the target audience using various approaches, including role plays, posters, group activities, etc. While topics in evaluation may be included, many of the training programs are conducted within limited timeframes, ranging from a couple of days to a couple of weeks. When time is a constraint, specific evaluation topics of evaluation are often given low priority within the training, perhaps because the CBOs are seen more as service providers rather than agencies that are capable of evaluating their own programs.(10) In addition, evaluation topics covered in training in PNG mainly include the process of information flow between the CBOs and the national data analysis agencies (19); the training often fails to provide explanations of behaviour change theories which are the basis of sexual behaviour change interventions in HIV and AIDS prevention.(20)

In recent years, there has been widespread recognition that many health programs have not been driven by health behaviour change models. Some of these limitations include the impermanence of externally driven interventions, a lack of integration of intervention theory with local theories of change, dependence on externally situated researchers to do the work, and the lack of transfer of problem solving skills to local populations. Consequently, health interventions that are not driven by any health behaviour change model are translated into unsustainable results, and extensive efforts to integrate external programs into local communities are met with mixed success.(21) This is a common gap found in many health interventions in PNG and elsewhere.(4, 22) For these reasons, this study investigated the facilitators and barriers to conducting valid evaluations of health promotion projects using HIV and AIDS primary prevention as a case study in the Northern Province of PNG. In addition, the study investigated through interviews with and observations, the influence of the work of implementers of the HIV and AIDS prevention programs on local behaviour change theories (if any), that might be relevant to providing an understanding of how behavioural science theory could be applied to the work of program implementers.

## 1.2. Aim of the Study and Research Questions

The aim of this study was to investigate the facilitators and barriers for indigenous program staff and managers to conduct realistic, reliable and valid evaluations for health promotion programs in PNG and Northern Province, using HIV prevention programs as a case study.

The research questions were:

1) What is the level of understanding, skill and experience in evaluation among program implementers?
2) What attitudes do program implementers have towards evaluating their own programs?
3) What are the barriers and facilitators in conducting evaluations to measure behaviour change?
4) Are there local theories of behaviour change and how do they affect the implementation and evaluation of the national HIV and STI prevention policy?
5) Can workable evaluation models that are understandable, practical and sustainable, be developed and implemented?

The primary outcome of the study is that it contributes a theory on building local capacity to evaluate health promotion programs at the community level. Other secondary outcomes are that this study provides:

(i) The only situational assessment of HIV interventions in the study area between 2008 and 2012. It describes the profile of the various stakeholder organisations and the HIV prevention activities they conducted. Various agencies have produced reports of their respective HIV interventions. However, no report has described all HIV prevention work in the Northern Province in a single document. Though this might be a task of the Provincial AIDS Council (PAC), documentation was not available. A single report would facilitate the dissemination of relevant information throughout the province and the nation, and thereby aid in information exchange and diffusion of information relating to the success and challenges of the HIV prevention programs in the province;

(ii) Baseline information required for further research into HIV interventions in the Northern Province. Specifically, the information from this study can be used to provide a benchmark to measure future trends in the progress of capacity building in the specific area of program evaluation of community-based

interventions. The lessons learned from this study could be used to strengthen qualitative study designs for potential use in research elsewhere in PNG and possibly in other countries; and

(iii) Observational data over a period of three years (2011–2013) in a province in PNG. It produced some evidence that at both the level of the National AIDS Council Secretariat (NACS) and the PAC, there is a need for forward planning and decision making.

## 1.3. Significance of the Study

The major reasons for conducting this study were twofold: Firstly, the results of the study were expected to contribute to scientific knowledge on indigenous perspectives of health interventions that promote behaviour change outcomes. Secondly, how program theory and evaluation was perceived.

The spread of HIV is widely acknowledged as a public health challenge facing both developed and developing nations. Despite recent evidence of the potential impact of male circumcision for HIV prevention in moderate and high burden settings (23,24), the lack of an effective, preventative HIV vaccine (25) and limited success in the development of other biomedical technologies, such as vaginal microbicides (26,27), has re-focused international attention on the need for comprehensive, integrated behaviour change interventions for HIV and AIDS. Given the upsurge in HIV prevention programs implemented globally, there has been a growing need to evaluate interventions, to identify the key factors that contribute towards the effectiveness of HIV prevention programs.(22) Therefore, evaluation is needed at every step of the intervention, as feedback is necessary to reinforce effective prevention messages and modify ineffective activities.(22, pp.129-31) In order to conduct systematic evaluations that will provide feedback to improve programs, it is important to understand the gaps that exist in the evaluation process. A gap identified was the lack of research on how program theory was perceived at the community level where direct primary health promotion was delivered. This study embarked on investigating this issue and providing relevant information to policymakers and implementers of primary health programs to consider when developing future HIV and broader health interventions with stronger monitoring and evaluation (M&E) systems.

In PNG, reviews have been conducted to evaluate HIV prevention interventions at the national level. These reviews have been largely donor driven (32) or conducted by teams of external evaluators.(33) Few organisations implementing activities in HIV prevention have internally evaluated their activities. A lack of funding, no technical capacity, overburdened multi-tasked staff, and time limitations have resulted in such evaluations being given lower priority.(4) In PNG, evaluations in HIV prevention and other health promotion programs have not been conducted systematically (34), hindering the development of evidence-based prevention strategies, policies and interventions. Evaluation is a cycle of evaluation processes (formative, process, impact, and outcomes) which ideally should be driven by appropriate models and theories of interventions that promote health.(1) Evaluations should also be conducted systematically to observe trends in the intervention.(35) While process monitoring has been predominantly used to gather data within health programs nation-wide, there have been many challenges and obstacles to evaluating HIV interventions at community level.(34)

I worked in community-based HIV prevention programs in PNG for six years (2003 to 2009) in various capacities, including research manager and M&E officer. I experienced first-hand the challenges involved in conducting evaluations for HIV prevention projects. With no training in M&E, I had to learn by trial and error, and often tried M&E systems that failed. Limited guidance and support were provided through available external technical assistance, which ranged from a few minutes to less than a week. There was minimum transfer of skills and when I had questions to ask when faced with an obstacle at work, the external consultant had already departed. Personally, I was frustrated that I could not meet the demands of project funders, as I was unable to methodically show behaviour changes among service users. I felt incompetent when I did not fully understand the technicalities of program theory.

I attended several M&E training sessions conducted by external consultants, but these training sessions made no reference to behaviour change theories. Although program theory was explained, there was no clarification of a specific behaviour change theory to underpin the HIV prevention interventions. When the word “theory” was mentioned in HIV-related seminars by international non-government organisations (NGOs), it provoked discussion among indigenous Papua New Guineans who voiced objections to the introduction of ‘foreign theories’ that were not applicable to PNG’s situation because of

differences in the lifestyle. Indigenous project managers and foreign locally-based program managers demanded that their staff follow "international best practice" in relation to their work. I wondered what the managers meant by 'international best practice' and became curious about 'foreign theories'. In addition, there were issues of accountability raised when project indicators were not met within the expected time-frame. As there was a shortage of local capacity to conduct systematic evaluations of health promotional programs in the country, I was challenged to investigate the gaps in this area. As a result, this study was conducted to reflect a personal interest in the topic of building local M&E capacity for community-based health promotion programs especially, in a country like PNG that continues to rely heavily on external reviewers and evaluators. This is not to imply that community-level health promotion does not need external evaluators. Rather, a collaborative effort is encouraged between internal and external program evaluators as a strategy to build evaluation capacities. In PNG, many community-based health interventions are not fully participating in program evaluations, because studies have not been carried out to understand the implementers' knowledge of program theory in order to inform national agencies including the dominance of top-down upward accountability, and results-based evaluation approaches. My research was therefore designed to tell the story from the perspective of an insider, a representative of indigenous M&E staff.

There were three reasons for selecting HIV and AIDS as the disease for the case study. Firstly, lessons can be learned from HIV and AIDS prevention programs that did not have an M&E component in their original project designs. After the first AIDS case was diagnosed in PNG in 1987, many community-based HIV prevention programs mushroomed due to the rapid rate of increase in the incidence of HIV within a short period of time. The urgency to arrest the spread of HIV resulted in increased funding, mainly from the Australian Agency for International Development (AusAID), in terms of financial and technical donor support (36); also from the Global Fund for AIDS, Tuberculosis and Malaria.(37) With the benefit of hindsight, it could be argued that mechanisms to monitor and review the preventive programs nationwide were not adequately planned prior to 2007 (38), and that this is still an area of M&E concern many years later. Secondly, HIV and AIDS is a disease driven largely by human sexual and health seeking behaviours. Therefore, it is a good case study to use when discussing behaviour change theories and program theory. In addition, I am from the Northern Province of PNG; therefore my cultural understanding is important in the review of behaviour change theories. Thirdly,

HIV and AIDS prevention is an area I have professional experience in, especially in research and M&E.

On a global scale, this study contributes to health promotion as advocated by the Ottawa Charter of Health Promotion. The First International Conference on Health Promotion, held in Ottawa, Canada, on the 21st of November 1986, presented the charter for action to achieve health for all by the year 2000 and beyond.(39)

The Ottawa Charter for Health Promotion (39) defines health promotion as a process of enabling people to increase control over, and to improve, their health.(40) Health promotion aims to improve individual and population-wide health outcomes.(39) According to the charter, improvement in health requires a secure foundation based on the following prerequisites:

- Advocacy for health across all sectors of life including social, economic, cultural, environmental, behavioural and biological factors.
- Enabling fullest health potential through life skills and opportunities by making health choices with equal participation between men and women.
- Health promotion demands coordinated action by all concerned: by governments, by health and other social and economic sectors, by non-government agencies and voluntary organisations, by local authorities, by industry and by the media.
- People in all walks of life are involved as individuals, families and communities. Professional and social groups and health personnel have a major responsibility to mediate between differing interests in society for the pursuit of health. The charter states that the health promotion should be implemented through building healthy public policy; creation of supportive environments; strengthening community actions; development of personal skills; and reorientation of health services.(40)

In summary, this study will contribute to actioning health promotion through building public policy in the field of M&E; it advocates for personal skills development of indigenous health promotion workers, and it aims to strengthen community action through capacity building in relation to evaluation methods and processes.

The thesis consists of seven chapters. Chapter 1 is the introduction which establishes the context for the study. Chapter 2 reviews the literature and presents a synthesised discussion of program theory and program evaluation. Chapter 3 describes the methodology used in processing and analysing the data. Chapters 4 and 5 present the study findings, with Chapter 4 presenting the findings of the institutional capacity in program evaluation, while Chapter 5 discusses individual capacity in program evaluation within community-based organisations in the study location. Chapter 6 discusses the study

findings and their implications for evaluation capacity building (ECB) and public health; it also compares and contrasts this study to other studies, and acknowledges the study's limitations. Chapter 7 draws conclusions and makes recommendations for future research, evaluation practitioners, and public health policymakers.

## 1.4. Study Location

The Northern Province is situated to the northeast of the country's capital, Port Moresby. According to the 2000 population census, the province covers 22,800 km², and had (in 2000)[1] a population of 133,065 inhabitants.(154) The province is divided into two districts, Sohe and Ijivitari, comprising nine local-level governments and 162 wards.(84) The two districts share four local-level governments respectively, through which government services are distributed (Figure 2) (84,155). The Northern Province shares land and sea borders with two provinces that have been considered provinces with high HIV prevalence rates. These two provinces are the National Capital District (NCD) with a HIV prevalence rate of 3.6% and Morobe Province with a HIV prevalence rate of 3.3% as of 2010.(156) The Northern Province has a prevalence rate of 0.9% (Table 4). The overall HIV prevalence rate for the country is 0.9% (56). PNG has three main cities: Port Moresby which is in the NCD, Lae and Mt. Hagen (Figure 1). Popondetta is the provincial headquarters of the Northern Province.

From the National Capital District, it takes 20 minutes by air to reach Popondetta. There are daily flights operated between Port Moresby and Popondetta by two national airlines, Air Niugini and Airlines PNG. There were no other direct flights from other provinces to Popondetta (at the time this study was conducted). Many school age children are sent from the Northern Province to live with relatives in NCD to attend schools, as the education system in the Northern Province is considered by many parents and carers as being of low standard.[2] Out-migration has been a gradual movement over time, and many of these movements have been the result of marital unions as well as movement for job opportunities.(84, 154) Due to the mountainous nature of the inland areas of the Northern Province, there are no roads linking the Northern Province to other provinces, except for a trekking route, the Kokoda Trail. The Trail is 96 kilometres long and connects the inland

[1] The last official census figures for PNG (2000)

[2] Personal communications with six parents who have sent their children to study outside of the Northern Province.

part of the Northern Province to the inland parts of the Central Province, through to Port Moresby.(157,158) The Kokoda Trail is a national walking track and is well known for its World War II significance on account of it being in an area Australian soldiers fought Japanese soldiers. It is currently a tourist attraction which draws trekkers, mountain climbers, students on excursions, descendants of World War II veterans, and scientists from all over the world.(157) Another use of the Kokoda Trail is for fundraising drives; it has attracted funding, resources and human resource assistance, mainly from the Australian Government and its people, to assist with the education and health needs of people living along the Trail.(158) While the Kokoda Trail as a world famous trekking destination has attracted income-generating opportunities and better health and education services for local villages along the track, it has also brought with it HIV- and AIDS-related deaths, and other social problems associated with the abuse of alcohol and drug consumption (personal communication with Kokoda hospital staff).

The Northern Province (Popondetta) is linked to Morobe Province (Lae) by the sea (Figure 2). By following the country's south eastern coastline, it takes a 24-hour boat ride to travel from Popondetta to Lae. The Highlands Highway connects Lae City to the highlands provinces by road. The highland provinces have much higher HIV prevalence rates compared to other regions in the country.(156) Through regular coastal transportation via Lae and by land transportation through the highlands provinces, the people of Northern Province have had an ongoing socioeconomic relationship with the people of Morobe Province and the highlands region. Better health and education services are readily available and less costly to access from NCD, Morobe and from the Highlands Provinces, especially the Eastern Highlands Province (Goroka).


**Figure 1. Map of Papua New Guinea**

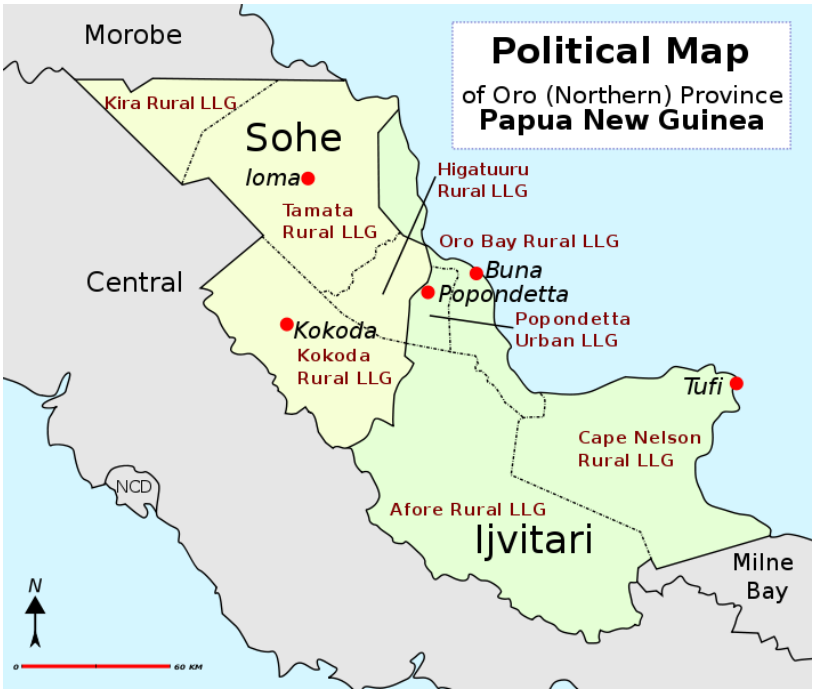



**Figure 2. Map of the Northern Province**

In terms of the reported epidemiology of HIV and AIDS, Northern Province has a HIV prevalence rate of 0.9% (65), which is similar to the national prevalence of 0.92%.(78) The rationale behind the selection of Northern Province as the study location is that with an adult HIV prevalence that is considered lower than for other provinces with HIV rates above 1%, primary prevention should be the emphasis of HIV interventions in the study

location. The working definition of *primary prevention* applied in this study refers to any health promotional activity with the aim of minimising the incidence of HIV infection in the general population.(83) HIV intervention using changes in behaviour approaches in the province have mostly been at the primary prevention level.(84) Furthermore, since the province has been observed as being a low prevalence province, it has not experienced the same level of intensity of prevention efforts compared with many other provinces.(84)

## Chapter 2. LITERATURE REVIEW

This chapter commences with a profile of the human immuno-deficiency virus (HIV) and acquired immune-deficiency syndrome (AIDS). This is followed by a description and synthesis of the research literature concerning the global situation of HIV and AIDS, the disease as a public health concern, and the significance of evaluating HIV prevention programs. Evaluations of HIV interventions that have used program theory are reviewed. The HIV and AIDS situation in Papua New Guinea (PNG), and the systems and policies in place to control the spread of HIV in the country, particularly the M&E structure, are then outlined. Finally, literature on program theory evaluation and behaviour change theories and models, are reviewed.

The description of the inclusion criteria for the literature review was 'any HIV primary prevention program conducted between 1980 and 2013 that included a health behaviour change model'.

There were four main themes selected as the inclusion criteria in the literature review: 1) HIV prevention programs that were underpinned by health behaviour change theories; 2) capacity building in evaluation within health promotion programs; 3) HIV primary prevention programs; and 4) indigenous theories used in health promotion intervention (Table 1). HIV and AIDS programs underpinned by behaviour change theories between 1980 and 2013 were selected because HIV interventions began to increase globally after 1980.(41) Any geographical location and socio-economic groups were included, as successes and challenges in programs were key factors to examine in learning about the effectiveness of theory-based programs. Thus, the subject of evaluation capacity building (ECB) as discussed in this thesis is intended for any health promotion program that is underpinned by health behaviour change models, not just HIV prevention programs. Therefore, any literature on capacity building in evaluation in any health promotion programs was included in the review.

The literature search covered only the interventions in primary HIV prevention. Secondary and tertiary HIV prevention programs were excluded, as the inclusion of all three levels of HIV prevention would have resulted in a time commitment beyond the capacity of the study, to review and analyse the literature (Table 1). In addition, primary prevention of HIV was commonly used in a low HIV prevalence province such as the

Northern Province, where the data collection for this study was conducted. A decision on time management was made given the four-year timeframe of my doctoral candidature, which included three field trips to gather primary data in Papua New Guinea.

Although many community-based HIV prevention programs include sexually transmitted infections (STI) as part HIV primary prevention (42), STI interventions were not included in this study. Initially, STIs were included in the literature review but due to the time required to collect and manage a large secondary data, for the sake of clarity and conciseness, a decision was made to focus on only one STI, and that was HIV.

**Table 1. Inclusion and Exclusion Criteria for the Literature Search**

| Inclusion Criteria | Reason |
|---|---|
| Based on four themes:<br>1. HIV prevention programs that were underpinned by health behaviour change theories<br>2. Capacity building in evaluation within health promotion programs<br>3. HIV primary prevention interventions<br>4. Indigenous theories used in health promotion intervention | Relevance to thesis topic |
| HIV primary prevention programs conducted between 1980 and 2013 | HIV and AIDS prevention programs increased in the early 1980s |
| Any geographical location | My study was interested in reviewing the successes and challenges of any primary HIV interventions driven by behaviour change theories; therefore, geography and socio-economic status of people were irrelevant as my research project was not a comparative study |
| Any socio-economic groups | Same as above |
| Any evaluation capacity building study in health promotion (not restricted to HIV and AIDS programs) | This thesis used HIV as a case study to discuss the significance of building local evaluation capacity among community-based organisations participating in health promotion |
| **Exclusion Criteria** | **Reason** |
| Secondary and tertiary HIV prevention programs | Time limitation to review and analyse secondary data |
| Interventions on the prevention of STIs | Study focused on HIV to provide in-depth analysis |

| | |
|---|---|
| | and clarity relating to the issue of building local capacity among community-based organisations to evaluate sexual behaviour changes in avoiding an STI that has no cure at the moment |
| HIV primary prevention programs conducted before 1980 | HIV prevention programs increased globally after 1980 |
| Any evaluation capacity building in programs that were not linked to health promotion | The focus of this thesis was on evaluating health promotion programs |

A literature review is an evaluative report of information found in the literature related to a selected area of study.(166) There were four ways in which literature was searched. Firstly, literature was searched in PubMed, Medline and Web of Science databases, using the following key search words: HIV and/or behaviour change, capacity building and/or evaluation, behaviour change theories and or HIV and AIDS, and indigenous or local theories and/or health promotion. Abstracts of articles were read and electronic copies of articles relevant to the thesis topic were imported to various Endnote files (Table 2). There were several other Endnote files created for references on research methods, and other information on HIV and PNG. Additionally, a general Endnote file was created to store any other relevant documents for references in the thesis. For example, articles that were indirectly related but significant were stored in the general Endnote file. This included such topics as sexuality, culture and society, and spiritual and religious beliefs on HIV and AIDS. Backup copies of the Endnote files were made and stored on three other hard drives. Most electronic copies of the articles cited were printed and stored in different folders labelled under various titles (Table 2). This process of secondary data management was an efficient preparation for referencing. Files were number coded. Less than 10 files were created for both the Endnote files and the hard copy folders, as fewer files were easy to manage in order to cross-check references between the soft and hard copies.

**Table 2. Literature Search Files Created**

| No. | Titles of Endnote Files | Titles of Hard Copy Files |
|---|---|---|
| 1. | My Endnote Library (general) | Evaluation in developing countries |
| 2. | References in research proposals and ethical clearance | Evaluation in public health |
| 3. | Evaluation of HIV prevention programs | Evaluation in HIV programs |
| 4. | PNG | Papua New Guinea |
| 5. | Methodology | Methods |
| 6. | Theory-based interventions | Theory-based interventions |
| 7. | Capacity building in Evaluation | Capacity building |
| 8. | Behaviour change theories and models | Behaviour change theories and models |

Secondly, literature was obtained from the reference lists of cited articles. A search on author's names, title of the article and/ or name and volume of the journal, was conducted to find the article on the University of Queensland's (UQ) library catalogue. When located, these documents were immediately imported to the relevant Endnote file, and printed to provide a hard copy. If the copy was unavailable through the University of Queensland's electronic library service, a request was sent to the library services to make a paper copy available for collection at the university library.

The third way in which literature was obtained was by asking experts known to me in the fields of AIDS, program evaluation and health promotion. In addition, emails were sent to both government and non-government agencies to request the latest data and publications they may have produced. If the organisations had a website, the website was first searched, and then an email was sent. If they did not have a website, an email was sent, for example, many government agencies in PNG do not have websites; therefore, emails were sent to them to request copies of recent reports. Some websites were not regularly updated; hence, an email was the best option to gather up-to-date information. In some cases, the authors of publications and reports were personally known to me; in such cases emails were sent directly to the authors to request electronic copies of the documents. Government reports that were not widely available, and recently published articles that were relevant to the thesis topic, were obtained via email from my advisory team. The team

comprised academics in the fields of International and Tropical Health, Program Evaluation, STI, HIV and AIDS, and Health Promotion. Furthermore, since I met on a regular basis with her primary academic advisor[3], the advisor was aware of where the thesis showed gaps in the literature review. The primary advisor provided recent (2012–2013) abstracts from conferences she attended. These abstracts either complemented or debated some earlier studies which provided the thesis with a holistic understanding of the discussions in the thesis. The advisor also provided reports on evaluation tools and frameworks from agencies such as the United Nations, World Health Organization and the World Bank. In addition, in September 2013, I attended the International Evaluation Conference hosted in Brisbane by the Australasian Evaluation Society (AES), where journal articles and conference abstracts were gathered, and which provided references needed for indigenous health behaviour theories. In addition, links to certain websites (Table 3) were located using key words. For example, a Google search using the key words 'ottawa charter for health promotion' provided the WHO link.

There was limited access to documents of evaluation capacity building in community-based organisations and indigenous theories. Articles on these two subjects were scarce in the UQ health sciences library databases searched. As such, they had to be sourced through grey literature and through website searches. Documents were searched on the World Wide Web (www) using the Google search engine. The literature was searched using five key terms "Evaluation capacity building for HIV AND health promotion"; "behaviour change theories AND HIV prevention"; "indigenous theories AND health promotion"; "Evaluation in HIV prevention"; "HIV prevention in Papua New Guinea". The websites cited in this thesis are listed below (Table 3). Information posted on the respective websites was used as sources of references in this thesis.

**Table 3. Websites searched**

| Name of website searched | Information obtained from website |
|---|---|
| WHO | The Ottawa Charter For Health Promotion |
| WHO | Adult HIV Prevalence: (15–49 years), 2011 |
| UN Organisation | Combating HIV/AIDS, malaria and other diseases |
| International HIV/AIDS Alliance | Vulnerable and most at risk populations |
| Centers for Disease Control and Prevention (CDC), Division of HIV/AIDS Prevention | Compendium of evidence-based HIV prevention interventions |
| Australian National University, Land | Map of Papua New Guinea |

[3] Professor Maxine Whittaker.

Finally, a list of references on evaluation capacity building in community-based organisations and indigenous theories was provided by a reviewer of this thesis which strengthened the overall literature reviewed.

## 2.1. HIV and AIDS Profile

AIDS (acquired immune deficiency syndrome) is caused by a retrovirus called HIV, the human immunodeficiency virus (HIV), which attacks and weakens part of the body's immune system, leaving the person vulnerable to a variety of life-threatening infections.(43,44) Persons infected with HIV usually show no symptoms of the disease and therefore can unknowingly infect another person. An untreated person infected with HIV can die of AIDS within five to 10 years, depending on their health and well-being. The survival period is shorter for untreated children.(43) There is no definitive cure for HIV, so primary prevention is the mainstay of management of this infectious disease.

HIV causes illness by destroying the immune system. It can infect many human cells but mostly targets the CD4 lymphocytes (also known as the CD4 cell, T-helper cell or helper cell).(44,45) The CD4 cell is a type of white blood cell that prevents infections caused by common viruses, bacteria, fungi, parasites, as well as cancers. Over time, HIV destroys the CD4 cells, resulting in an insufficient supply to fight off other opportunistic infections.(45) Although a HIV infected person may be undergoing treatment for other infections, he or she may not respond to the treatment and eventually die. The speed at which the CD4 count decreases varies from person to person and depends on factors such as genetic characteristics, the characteristics of the viral strain, and the amount of HIV in the blood (viral load).(44,46) In addition to damaging the immune system, HIV can directly affect other organs in the body such as the kidneys and the nervous system. It can also cause weight loss, night sweats and diarrhoea.(44) The CDC considers an HIV infected person to have AIDS when their CD4 count is below 200/mm3, regardless of signs or

symptoms.(203) A normal CD4 count ranges from 500–1,000 cells/mm3. A CD4 count of less than 200 cells/mm3 is equated with an AIDS diagnosis.

There are two main modes of HIV transmission: (i) through blood (blood transfusion, blood products, the use of HIV blood-contaminated needles and syringes or other HIV-contaminated skin-piercing equipment), and (ii) through an exchange of semen and/or vaginal fluids during sexual activity. Other forms of transmission include from an infected mother to her child (transplacental), exposure to infected vaginal fluids during delivery and through breast milk.(43) However, sexual contact is the most common source of transmission, with 75–85% of people becoming infected through this mode.(46) This includes both men who have sex with men (MSM) and heterosexual intercourse. The virus can be transmitted from any infected person to his or her sexual partner. Infants are not infected at the time of conception; therefore, an HIV positive man can only infect the infant indirectly by infecting the mother.(44) HIV is not spread through contact with saliva, urine, sweat, or faeces. HIV is not transmitted through mosquito bites, exposure of body fluids through intact skin, holding hands, kissing, hugging, sharing drinking glasses or eating utensils.(44)

As HIV is an infection driven by lifestyle circumstances and sexual practices, there are socio-economic factors that contribute to the spread of HIV. A considerable amount of literature has been released by international agencies working globally, to minimise the spread of HIV. Reports, fact sheets and other forms of documentations have presented information about the underlying socio-economic factors that drive the spread of HIV. These factors include poverty, gender-based violence and illiteracy, which are common situations in Papua New Guinea.(47) Despite progress on prevention and treatment, AIDS continues to undermine every aspect of human development in hard-hit countries. According to the International Labour Office on HIV/AIDS and the World of Work (ILOAIDS), there is strong linkage between HIV and AIDS and poverty in resource poor settings.(48) Poverty sets the stage for the spread of the epidemic. Poverty decreases choices. It forces many to leave their homes in search of work, making them more vulnerable to risky behaviour. At the same time, poverty often limits access to interventions to prevent the acquisition of HIV or help manage HIV and AIDS. According to the Joint United Nations Program on HIV/AIDS (UNAIDS), people who are impoverished are more likely to turn to transactional sex as a way to earn money or other resources. It leaves many

impoverished girls and women vulnerable to exploitation, including trafficking, early marriage, and selling sex. Many women in poor countries see sex work as one of the few options available to financially support themselves.(49) Furthermore, income is lost when the earners are no longer able to work, and expenditure increases due to medical care costs. Poor households often spend their savings to meet medical care costs of sick family members. Poverty increases the risk of HIV and AIDS when it propels the unemployed into unskilled migratory labour pools in search of temporary and seasonal work, which increases their risk of contracting HIV and AIDS.(48) A crucial aspect of poverty brought about by HIV and AIDS is the loss of human capital. The deprivation of human capital comes from the loss of labour force and also from lost capacity to develop and utilise the human capabilities that are necessary for social and economic development.(48) The HIV and AIDS crisis thus presents a major challenge to poverty reduction strategies and to the achievement of targets and goals such as the Millennium Development Goals (50), as well as other development initiatives of governments, donors and the international community. Poverty is complex and multi-faceted. It encompasses many forms of deprivation, including access to essential public goods and services (education, health care, clean water and sanitation), the poverty of private assets (which includes physical labour, land, livestock, and food), and the poverty of social relationships (discrimination, social exclusion and a lack of mutual support).(48)

Gender-based violence has been reported to be a contributing factor to the spread of HIV and AIDS, but its association to HIV and AIDS has been found to be indirect. In a prospective study, Pitpitan et al. (51), examined a cohort of women in South Africa who had a lifetime history of gender-based violence, alcohol use and mental health problems.(51) The study observed the association between gender-based violence and future sexual risk behaviour and found that there was a significant indirect effect of gender-based violence on sexual risk behaviour through alcohol use. The study concluded that women who were physically and sexually abused consumed more alcohol, which in turn was reflected in increased unprotected sex. Similarly, in an earlier study, Dunkle and colleagues (52) observed an indirect relationship between gender-based violence and the acquisition of HIV and AIDS.(52) Also conducted in South Africa, the cross-sectional study involved women who attended a routine antenatal HIV testing clinic and participated in face-to-face interviews. The study found that women with violent or controlling male partners were at increased risk of HIV infection. Intimate partner violence was associated

with an increased likelihood of HIV risk behaviour such as having multiple partners, having non-primary partners, engaging in transactional sex, and having problems with substance abuse.(52) According to the study, this was likely due to the connections men had to the social perceptions of masculinity. Similarly, illiteracy has been found to not directly contribute to the spread of HIV. However, illiterate men and women have no access to written information. The illiterate remain unaware of many issues affecting them that are being communicated through printed material.(53) As they do not have the skills to read and write, they are unable to know what HIV is and how it is spread. In some cases, they may be given incorrect verbal information but are in no position to verify this through reliable printed information. That is where other means of communicating information such as street theatre, role play, video shows, and radio programs are often used in health interventions for behaviour change communication programs, with limited use in PNG.(178)

HIV is a preventable disease. The means of prevention are directly associated to the modes of transmission. By avoiding the transmission of HIV through blood, the acquisition of HIV can be prevented by the following: not sharing needles and syringes and other skin-piercing equipment; not reusing contaminated needles and syringes; screening blood and blood products for HIV; and by autologous blood transfusion.(43,44) Autologous blood collection and transfusion is the process of collecting and using one's own blood for transfusion during a planned surgical procedure.(43) HIV transmission through sexual activity can be prevented by: abstaining from sexual activity, limiting the number of sexual partners, engaging in sexual activities other than anal and vaginal intercourse, preventing injury during sexual activity (e.g. rape), and by using condoms when having sexual intercourse.(44) In addition, the chances of HIV transmission can be reduced by treating all sexually transmitted infections (STI). The treatment of STIs helps close breaks in the skin, thus minimising the chances of HIV being passed on to a sexual partner. To prevent HIV transmission to infants, all pregnant women should be tested for HIV infection to allow treatment to child if required. Treatment during pregnancy is almost 100% effective in preventing transmission to babies.(44) The drug Nevirapine is given to mothers to lower mother-to-child transmission.(46) HIV tests check for the presence of antibodies produced by the body's response to HIV infection. It does not test for the virus itself.(43)

There is no cure for AIDS. However, the administration of antiretroviral drugs to people living with HIV stops the virus from reproducing itself. The antiretroviral drug does not kill HIV. By stopping the virus from reproducing itself, this stops the virus from infecting new cells, hence the immune system can recover without the continued loss of CD4 cells.(44) On average, if untreated, it takes five to eight years for the HIV infection to develop into AIDS.(46) This period can be extended by eating healthy and nutritious food, and avoiding smoking, taking drugs, or consuming excessive amounts of alcohol. Living a healthier lifestyle, which includes regular exercise, will prolong the normal life of a person infected with HIV.(43)

HIV and AIDS have not been confined to any single geographical location. Millions of people have been globally infected and affected by the pandemic. According to the World Health Organization (WHO) (54), since the beginning of the epidemic, almost 70 million people have been infected with HIV and about 35 million people have died of AIDS. Globally, between 32.2 and 38.8 million people were estimated to be living with HIV in 2012.(204) An estimated 0.8% of people aged 15–49 years are living with HIV in the world today. Although the burden of the epidemic continues to vary between countries and regions, Sub-Saharan Africa remains the most severely affected region, with nearly one in every 20 adults (4.9%) being infected with HIV. The burden of HIV in Sub-Saharan Africa accounts for 69% of the people living with HIV worldwide.(54) As reported by WHO (54), the global distribution of HIV prevalence in 2011 shows that Africa has the highest average HIV prevalence of 4.6%, followed by the Americas on 0.5%, and Europe with an average HIV prevalence rate of 0.4%. South East Asia (0.3%), Eastern Mediterranean (0.2%), and the Western Pacific (0.1%) regions have lower estimated prevalence rates. The HIV disease burden is generally concentrated in specific regions of individual countries. For example, PNG has the largest incidence of the disease in the Pacific Islands region[4] (55) with a prevalence rate of 0.9%.(56) In 2008, PNG was responsible for 99% of the disease burden in the Pacific Islands region.(57) By 2010 there had been a levelling off of the level of HIV infection.(56)

Infection rates are also generally concentrated in specific sub-population groups, such as the vulnerable groups and what is known as 'the most at risk populations' (MARPS).(58) In every society, there are individuals and population groups who are more

[4] Excluding Asian countries, Australia and New Zealand.

vulnerable than others in contracting HIV.(58) In general, the very young, the elderly and people who are sick or live with a disability, are especially vulnerable. In some societies, women, ethnic or religious minorities, migrants or other groups, can also be vulnerable, especially to abuse, stigmas and discrimination.(59) Vulnerability to HIV is a result of a combination of factors, including more personal circumstances such as age, social mobility, education, gender identity, and the environment in which an individual lives, such as poverty, gender discrimination or lack or inadequacy of services.(41,58) Vulnerable populations involve groups that enjoy lesser legal, social or policy protection, which limits their ability to access or use HIV prevention services.(58) In some cultures, girls and women face strong social pressures that can render them vulnerable to HIV.(41) For example, harmful social and cultural norms often restrict girls' and women's access to information about sexual and reproductive health, or prescribe a more passive role for them in decisions about their sexual life.(41,51,58,60) These norms can undermine girls' and women's autonomy, and may prevent them from insisting on abstinence or condom use by male partners.(58) Social and cultural norms related to masculinity can also mean that in some societies, boys and men are expected by their peers to display dominant, sometimes violent, behaviour to women and girls.(61,62) Harmful concepts of masculinity can further discourage males from seeking health services and encourage them to engage in risky behaviour such as substance and drug use or multiple casual sexual relationships.(62,63)

Most-at-risk populations are often vulnerable due to social and institutional rejection and discrimination.(58, 59) Depending on the context, they can include drug users, sex workers, MSM, transgender people, prisoners, and other groups.(58) For instance, millions of people worldwide are injecting drugs, and blood transfer through the sharing of non-sterile injecting equipment is an extremely effective way of transmitting HIV. Around 30% of global HIV infections outside of Sub-Saharan Africa are caused by risky behaviour related to injecting drugs, and this accounts for an ever growing proportion of those living with the HIV virus.(41,58) The factors that place sex workers at risk also vary between contexts. Evidence shows, for instance, that risk factors can include sexual violence on the part of clients or sex workers accepting higher payments for engaging in unprotected sex. In some places, sex workers commonly use drugs and share needles. The overlap between sex work and injecting drug use is linked to growing HIV epidemics in a number of countries, including China, Indonesia, Kazakhstan, Ukraine, Uzbekistan and Vietnam.(58)

Vulnerable and most-at-risk populations are where vulnerability and high risk converge.(58) These are populations that are at higher risk of being infected or affected by HIV. They play a key role in how HIV spreads.(58) Key populations vary according to the local context and may include people living with HIV, their partners and families, people who sell or buy sex, MSM, people who use drugs, orphans and other vulnerable children, certain categories of migrants and displaced people, prisoners, and truck drivers who travel long distances.(58)

Based on this review, although achieving behaviour changes is complex and difficult and the outcomes of some strategies are difficult to predict, better health seeking choices need to be encouraged in health promotion programs. Many preventable diseases such as HIV are spread through human behaviour that can be changed. Behaviours (both positive and negative) can be identified among those at risk of infection due to their vulnerabilities. These behaviours can then be targeted for change using health behaviour change theories in health promotion. This thesis is not about a HIV project; rather it is about using HIV as a case study to demonstrate why it is important for service providers to understand and evaluate health promotion programs, with reference to health behaviour change theories.

## 2.2. Overview of the HIV and AIDS Epidemic in Papua New Guinea

The HIV epidemic has been a health challenge for PNG for more than 20 years. The first HIV positive case in the country was diagnosed in 1987 when six HIV positive cases were reported.(47,64) Since then the number of new cases has risen steadily. The nature of the epidemic in PNG has shown that the transmission of HIV is largely through heterosexual contact and that the distribution among males and females is almost equal.(64) However, more younger women between the ages of 15 to 29 years and more older men aged between 30 and 60 years are infected.(65) The differences in the age and sex distribution in HIV and AIDS are attributed to various socio-economic factors such as low literacy levels among females, poverty which results in the sale of sex among young women to older men with money, unemployment among young people, high crime rates which include sexual violence such as gang rapes of young women (60,64,66), and gender-based violence and gender inequality in education, employment opportunities and in equal rights to decision making and ownership of resources such as land and property.(67)

The absence of job opportunities which has resulted in migration to towns is a primary cause of the law and order problems in the larger towns. In urban areas, the problem of unemployment is more serious than in rural areas.(64) PNG does not have a brothel-based commercial sex industry but it has a long history of an informal sex. Field patrol reports from the Wewak and Boiken areas of East Sepik Province dating back to 1949 and 1950, prior to PNG's independence in 1975, Jenkins identified the presence of a sex industry.(68) The nature and context of the sex industry has changed with mobility, and the development of mines, ports and logging camps has increased the numbers of people in urban areas with changes in access to cash income.(69) A study conducted by the PNG Institute of Medical Research (2011) of sex among men (n=69), women (n=441) and transgenders (n=56) in Port Moresby reported that the mean number of clients per week involved in sex varied greatly according to gender. Women averaged 6.2 clients, transgenders 5.7 clients and men 2.9 clients per week. Seventy-eight percent of the total sample had only men as clients, but 58% of the men and 23% of the transgenders had women clients. Traditional landowners were the most common clients, followed by company employees and public servants. The most common location for selling or exchanging sex was in a settlement or village, followed by a guest house, and the house of a friend or client.(60) The study was designed to map the sale and exchange of sex in Port Moresby, and create an understanding of sex workers and their vulnerability to HIV.(60) According to the research, 381 study participants were tested for HIV. The unadjusted HIV prevalence was overall 17.6%, 19% among women, 8.8% among men and 23.7% among transgenders.

Some commentators have argued that the country's vulnerability to HIV increase is also the result of socio-cultural factors (64); for instance, through the practice of polygamy in some societies in PNG. Anthropological literature has documented the marital characteristics of many of the ethnic diversities in PNG.(64,70-75) The practice of polygamy in the highlands region of PNG has been ongoing for generations, where it is socially and culturally acceptable for men to marry more than one wife.(70) Traditionally, as a sign of wealth and power, men built their status by having several wives who were bearers of children and looked after herds of pigs. The number of pigs owned was a significant measure of wealth, while several wives were required to produce male children to build up the number of men needed for tribal warfare and stronger kinships.(70) While polygamy continues, it has not been specifically identified as a factor that contributes to the

spread of HIV. An article titled 'Polygamy Ups AIDS cases in PNG' published by *The National Newspaper* dated 9 September 2013 stated the following:

> *Polygamy and prostitution contribute greatly to the spread of HIV/AIDS, according to the Papua New Guinea Aids Council secretariat for Hela and Southern Highlands. It discovered that from 2010 to June this year (2013), there was a rise in HIV/AIDS due to sexual relationships outside marriage. In a polygamy relationship, sex with non-regular partners accounted for 55% in Hela and 40% in Southern Highlands. The council said husbands were largely to be blamed for being unfaithful, with more than 50% of men involved in sex outside of marriage*.(71)

The assertion that polygamy contributes to the spread of HIV and AIDS could be misleading, as the issue stated in the article relates to men having sex with those who are not their wives; it is not the number of wives that is the issue here. Some incorporation of culture into policy and program responses to diseases such as HIV has been influenced by the contributions of anthropological research that has been made to understand how sexuality, illness, and health are socially constructed in PNG. For example, Tuzin (72) reports that among the Ilahita Arapesh of East Sepik Province, men practised bloodletting through penile cutting as a means to release toxins from sexual contact with women.(72) Through ethnographic data collection among men, Tuzin found that young teenage boys go through a ritual process of penile cutting to rid themselves of 'contaminated blood' that they accumulated from their mothers during pregnancy and birth. It's believed that removing the 'contaminated blood' from their bodies allows the young men to grow healthy and strong. Growing into adulthood and after several sexual encounters, bloodletting can be an ongoing activity for the men, to maintain health and well-being. Tuzin argued that this process of repeated penile cutting could be psychologically motivating for the men, because it offers some sense of sexual satisfaction and could be enjoyed by men as an erotic experience rather than a horrific exercise. In addition, it makes sense to them that ridding the body of unhealthy substances keeps them healthy and safe from sicknesses and weakness. However, the sexual practices of women in Ilahita Arapesh are unknown, unlike in other parts of the country, such as in the Trobriand Islands where women's sexual practices have been documented extensively through anthropological literature.(73-75)

The Trobrianders have always enjoyed a non-restrictive culture of sexual explorations with multiple partners before choosing a spouse. Married couples, both men

and women, are also free to enjoy casual sexual relationships with other people during yam harvesting seasons, and while husbands were away on trade voyages across the islands.(74) In these times of the AIDS epidemic, media reports (76) have drawn assumptions that such open and free sexual cultural practices could easily be blamed for the spread of HIV. In addition, an earlier publication by Chen (64) suggested that cultural practices such as puberty and initiation rites can be responsible for young men becoming vulnerable to HIV as they succumb to peer pressure with little or no responsibility. This is when young men are secluded from their communities and spend long transitional periods between childhood and adulthood.(64) However without strong evidence from quality studies these assumptions have the potential to misrepresent the notion that culture is an obstacle to HIV prevention rather than being a facilitator for prevention. Lepani (2008) conducted an ethnographic study in the Trobriand Islands among both men and women on how the ABC model of AIDS education contradicts the cultural practices.(75) Her study found that freedom of sexual expression among the Trobriand Islanders "forms the larger social network, including networks of exchange", because festivities during crop harvests and economic gain through the exchange of valuable items, are celebrated through sexual expressions.(75, p.252) Thus, sexual liberty among the Trobrianders should not be misunderstood to be necessarily pleasure driven. Malinowski (73) also reported that Trobrianders viewed sexual freedom as sacred and valuable in developing and strengthening economic and social relationships. Moreover, Lepani argues that the sexual practices in the Trobriand Islands should not be analysed as individual behaviours but as part of a social structure and that cultural relevance is an important guiding principle for HIV awareness programs.(75)

The 2007 Estimation Report on the HIV Epidemic in PNG indicated the national prevalence of HIV to be 1.6%. The understanding of the epidemic changed significantly in 2009 and 2010 when surveillance data was gathered from an increased number of health and testing facilities across the country. The surveillance sites increased from 60 sites in 2007 to 178 in 2009 and 250 in 2010.(36) The new data showed that, by the end of December 2008, the cumulative total of reported HIV cases indicated that the HIV epidemic was not as widespread as previously thought. While caution should be taken when accepting the reliability of some of these data, the 2010 HIV estimation workshop participants concluded that the 2009 data provided the most complete picture to date.(77) Surveillance analysis for 2009 found that HIV prevalence was an estimated 0.92% of the

adult population. Therefore, the epidemic is no longer classified as generalised for the country as a whole. Prevalence rates vary within the country. The 2009 data show that HIV prevalence is highest in the Highlands and Southern regions of the country (78), while the lowest is in Momase and the New Guinea Islands. With the expansion of surveillance and testing sites over the last few years into more rural areas, it has become clear that HIV infection is not only an urban phenomenon. It also appears that more women than men are HIV positive, though this finding must be treated with caution, given that the vast majority of surveillance data comes from antenatal testing.(36) The new findings also indicate that the spread of the HIV epidemic in PNG may be levelling off.

### 2.2.1. PNG Government's Response to the HIV Epidemic

In response to the threat of HIV and AIDS to its population, the Government of PNG established a National AIDS Council (NAC) and its Secretariat[5] by Act of Parliament in December 1997. The NAC is a multi-sectoral committee that is comprised of representatives from government departments, the Council of Churches, the National Council of Women, the Chamber of Commerce, NGOs and people living with HIV. The NAC is mandated to facilitate and coordinate a comprehensive multi-sectoral national response to the HIV epidemic. Five working advisory committees (behaviour change, medical expert advice, legal and ethical advice, research and sectoral response) operate at the national level. Twenty Provincial AIDS Committees have been established, although these vary in their capacity to function, and in some provinces lack community representation and support from the local government.(6) The NAC and the NDoH are responsible for the response to the HIV epidemic in the country. With extensive technical and financial assistance from its development partners and through the participation of a wide range of organisations, this has created an enabling environment for the government of PNG to respond to the epidemic.

Policies approved and in place have included the 100% condom use policy in 2000. Another policy currently under enforcement is the 100% safe blood supply. In July 2003, the PNG HIV Management and Prevention Bill was unanimously passed into legislation as the HIV Prevention and Management Act 2003. This established legal

[5] Secretariat – Referred to in this thesis as the National AIDS Council Secretariat (NACS)

grounds to redress discrimination and stigma, and defined conditions for mandatory screening. The Bill supported the recognition of human rights entrenched in the PNG Constitution and International Guidelines on HIV and AIDS, and Human Rights. Workplace policy and sectoral interventions were also made possible through the collaborative efforts of donors and NACS, by working closely with industry groups and Union organisations. This has influenced the capacity of PNG to implement a multi-sectoral response which has resulted in the development of program responses in key public sector agencies, including the Correctional Services, Ministry of Education, Ministry of Social Welfare and Development, and the private industry, including the mining sector and the Trade Union Congress.(6)

Three major campaigns were undertaken between 2001 and 2003 adopting the ABC approach. (Abstinence, Be faithful to one uninfected partner and Condom promotion). Of these, condom promotion has been regarded by the NACS as the most important and condoms have continuously been promoted and widely distributed. The methods used were the free supply of male and female condoms distributed through HIV prevention programs, social marketing of male and female condoms, and through promotional events such as the World AIDS day. Evaluations of the awareness campaigns have demonstrated an increased understanding of HIV in the community. The campaigns have stimulated discussion of AIDS and 'the sensitive issues of sex and condom use', as well as challenging the acceptance of gender roles and gender related violence.(6,7) These campaigns have also encouraged debate and challenged attitudes relating to stigma and discrimination towards people living with HIV. The national campaign has also been supported with the development and distribution of educational materials, the establishment of a National Resource Centre, condom distribution and grant support for community initiatives, including theatre. In addition, young people's vulnerability and their key role in HIV prevention have been recognised through specific initiatives identified and supported by young people.(6)

The government response also includes the control of STIs.(78) Much work has been done in the health sector to collaboratively address the skills of health workers to diagnose and treat STIs, including the provision of antibiotics for the treatment of STIs. The establishment of the National Centre for Sexual Health and the strengthening of STI clinics in other major centres help with the strengthening of links with counselling services,

improves laboratory testing and reporting of HIV, improving the provision of specialist clinical sessions for people living with HIV and stigma reduction amongst health workers. Clinical management of opportunistic infections and free ART is administered in health facilities around the country.(6)

Epidemiological surveillance capacity in PNG has been significantly improved over the years, resulting in the collection of surveillance data from a number of STI, TB and antenatal clinics. Efforts in this area are aimed at improving reporting and feedback mechanisms for both HIV and STI data to provinces, to enhance clinical care and increase specific knowledge of HIV transmission through research (epidemiological and behavioural). PNG's capacity to respond to the need for expanded HIV screening and to provide care and support for people living with HIV has been enhanced since 2003. Through the collaborative effort of government and donors, support has been provided to NACS in developing the curriculum for counselling training and training counsellors who have, in turn, scaled-up counselling training in all provinces.(19)

While HIV intervention programs have been reviewed at the national level (80-82), comprehensive reviews of HIV preventive interventions for specific provinces have not been conducted. Furthermore, there have been no studies conducted to date in PNG to understand the perceptions of evaluation among intervention implementers and users. In PNG, evaluations have not been conducted systematically (34), hindering the development of evidence-based HIV prevention strategies, policies and interventions. Evaluations should also be conducted systematically to observe trends in the interventions.(35) While process monitoring has been predominantly used to gather data within HIV prevention programs nation-wide, there have been many challenges to monitoring and evaluating HIV interventions at all levels.(34)

### 2.2.2. HIV Prevalence Rates in PNG Provinces

There are 22 provinces in PNG which are divided into four regions: Highlands, Momase, New Guinea Islands and Southern Region. The Northern Province is in the Southern Region of the country. At the time this thesis was written, the latest estimated HIV and AIDS figures released were from the end of 2009, which were revised in 2010.(56) Table 4 shows the prevalence rate of HIV in the Northern Province in comparison with other provinces in the country. The asterisked figures are prevalence rates that are greater

than 1% and higher than the HIV prevalence rate for the Northern Province.(79) The Highlands region, the NCD and Morobe Provinces were reported to have the highest prevalence rates of HIV, with associated higher STI prevention efforts due to their higher HIV prevalence rates. These provinces continue to be recommended for increased and improved HIV prevention services due to their high HIV prevalence status.(7,36)

**Table 4. HIV Prevalence Rates in PNG Provinces by Region, 2008–2010**

| Province | Total number tested | Total number HIV positive | Prevalence rate |
|---|---|---|---|
| Enga | 6,131 | 552 | 9.0* |
| Western Highlands | 12,098 | 733 | 6.1* |
| Simbu | 7,882 | 315 | 4.0* |
| Eastern Highlands | 13,211 | 331 | 2.5* |
| Southern Highlands | 15,236 | 145 | 1.0 |
| Hela[6] | | | |
| Jiwaka | | | |
| Highlands Region | 54,558 | 2,076 | 3.8 |
| Morobe | 9,753 | 319 | 3.3* |
| Madang | 7,414 | 100 | 1.3* |
| West Sepik Province | 2,030 | 12 | 0.6 |
| East Sepik Province | 3,509 | 7 | 0.2 |
| Momase Region | 22,706 | 438 | 1.9 |
| Manus | 1,230 | 16 | 1.3* |
| New Ireland | 2712 | 16 | 0.6 |
| East New Britain | 6,896 | 29 | 0.4 |
| West New Britain | 7,488 | 33 | 0.4 |
| A.R. of Bougainville | 6,982 | 16 | 0.2 |
| New Guinea Islands Region | 25,308 | 110 | 0.4 |
| NCD | 18,285 | 665 | 3.6* |
| Central | 1,633 | 28 | 1.7* |
| Western | 4,608 | 46 | 1.0 |
| Northern | 2,457 | 22 | 0.9 |
| Milne Bay | 7,290 | 46 | 0.6 |
| Gulf | 1,519 | 5 | 0.3 |
| Southern Region | 35,792 | 812 | 2.3 |

HIV and AIDS prevention efforts in the Northern Province began in the late 1980s by a team of youth volunteers from the Anglican Church. The group disseminated information mainly on the topics of the modes of transmission and prevention of HIV to the Anglican communities. At that time, HIV was new to PNG and not enough was known about the disease. Public awareness was the only intervention method used. In 2003, the Provincial HIV and AIDS Response Coordinator was appointed to coordinate HIV prevention interventions in the province. In 2005, the Provincial AIDS Council (PAC) Office became operational and in the same year a nationwide situational assessment was

[6] Hela and Jiwaka Provinces are the latest additions to the Highlands Region. They were given provincial status in 2012. Previously, Hela was a district in the Southern Highlands Province and Jiwaka was a district in Western Highlands Province.

conducted by the National HIV/AIDS Support Project (NHASP), under a social mapping project to create a 'map' of each province in the nation, illustrating the way that living conditions and peoples' knowledge and understanding of HIV and AIDS influence the development of the disease. The social mapping provided information regarding factors which constrained people from adopting protective behaviour, and documented peoples' attitudes towards those living with HIV and AIDS. The social mapping recorded attitudes towards risk factors and assessed the impact of the response to the HIV epidemic (84) in different provinces, including the Northern Province. The findings of the mapping exercise were used by the National AIDS Council (NACS) to determine the HIV prevention activities in the respective provinces.

## 2.3. Levels of HIV and AIDS Prevention

There are three levels of prevention: primary, secondary and tertiary. Primary prevention is about eliminating the causes of a disease before it can affect people.(30) Primary prevention aims to decrease the incidences of diseases by controlling the causes and risk factors. In HIV prevention, primary prevention involves making people aware of the disease and how to prevent themselves from acquiring HIV. The purpose of secondary prevention is to treat patients earlier and reduce the more serious consequences of disease through early detection and effective treatment or intervention, such as screening for the presence of the disease. Tertiary prevention is aimed at reducing the progress of established diseases (85); for example, by keeping people living with HIV alive and providing a better quality of life.

The focus of primary prevention is among the component of the population that has not been infected by HIV. Once people acquire HIV, then they are no longer the subjects of primary prevention. In primary prevention, the services provided in the intervention mainly consist of the distribution of educational materials, the development of new educational materials, education using video tapes, peer education, large group discussions, mass media, interpersonal communications, role plays, theatre, patient referrals for counselling, medical care through the treatment of STIs, and HIV testing.(11) Other activities in HIV primary prevention include the use of condoms, safe needles for injecting drug users, safe blood products, and the prevention of transmission from an HIV infected mother to her unborn child.(83)

The impact of the HIV pandemic has been felt in almost all nations, irrespective of whether they are currently experiencing a high prevalence or a low prevalence of HIV. In low prevalence nations, the priority has become the prevention of an epidemic, while in high prevalence nations, the priority is to restrain the spread of the disease and cope with the morbidity, the mortality and the loss of productivity AIDS brings to the nation's population.(87) The developing world is bearing the greatest burden of the disease with Africa and Asia being the most affected. The reasons are wide ranging and vary from country to country. For example, in Asia, the main mode of transmission is through injecting drug users, while in Africa the pandemic spreads through heterosexual relationships. The differences in the transmission patterns require different prevention strategies.(87)

There are two types of public health HIV preventive strategies: the biomedical approach and the behavioural approach. The biomedical approach includes the use of condoms, interventions in mother-to-child transmission, the intake of antiretroviral treatment, treatment of other STIs, and the monitoring of safe blood banks and blood products. Other biomedical interventions are under research investigation. They include the development of microbicides, physical barriers, and vaccines to prevent the acquisition of HIV.(88) The behavioural approaches seek to reduce high risk practices, such as sharing of needles for injecting drug users and having unprotected sexual relationships in non-monogamous relationships. These behaviours are often difficult to change after individuals have taken years to establish the habits and are deeply rooted in these practices. In the context of HIV, both the biomedical and behavioural preventive approaches can be utilised.

Many HIV prevention programs conduct activities that consist of several intervention delivery modalities. As such, a lack of clarity in measuring specific outcomes of the different delivery modalities can exist within HIV prevention programs.(9) CBOs in developing countries often become disoriented with all the implementation going on and they become unsure of how to measure the value of their efforts.(4,9) A common problem is the unspecific definition of the intervention target group, especially when programs involve clients in the general population.(30, 89) Many HIV preventive interventions target populations such as female sex workers, men who have sex with men (MSM), and injecting drug users. These groups are considered to be at a higher risk of acquiring HIV.(89) Although populations considered to be at higher risk are specifically defined, they are often

difficult to reach. For example, due to the illegal nature of their practices and, in the case of MSM, they are often stigmatised for their sexual practices.(30) Consequently, when conducting HIV primary preventive interventions with high risk groups, reaching the individuals who identify with these groups can be difficult. In secondary and tertiary prevention, individuals from these groups may come out to seek treatment. In contrast, trying to access high risk individuals for primary prevention can be difficult, especially when they feel healthy and do not perceive themselves to be at risk of acquiring HIV and STIs.(90) However, the focus of this study is on risk behaviours rather than on high risk groups.

In PNG, all three levels of HIV prevention have been implemented in the past two and a half decades.(6,91) The primary prevention strategy includes the dissemination of information, conducted by volunteer peer educators. HIV education was conducted through interpersonal communication either on a one-to-one basis or in small groups, advertising campaigns, printing and distributing nationwide material in English and Tok Pisin, and the screening of drama performances and video shows in communities during the day and night to communities in PNG. Public awareness activities were staged at special events such as World AIDS Day, where a community invited HIV project staff to speak, or whenever staff from a specific HIV project were requested to stage public awareness to inform the general public about HIV and AIDS and matters associated with the disease.(80) Other primary prevention activities have included HIV screening as well as the screening and treatment of STIs, mostly undertaken by the provincial health departments and church-run health facilities, with a few NGO-run clinics.(92) While the education component has reached most parts of the country, HIV and STI screening and treatment has not, due to various reasons. HIV screening is voluntary and, due to the associated stigma, people are embarrassed to attend testing facilities. Therefore, voluntary counselling and testing (VCT) in PNG has been challenging due to the stigma and discrimination. A mixed-method study conducted by the PNG Institute of Medical Research surveyed 374 people with HIV who had been taking ART for more than two weeks.(93) The study was conducted in six provinces of PNG. The study found that 47.3% of the sample reported having experienced some form of verbal abuse as a result of their HIV status. A higher proportion of females (53.4%) reported being verbally abused than males (37.9%) as a result of their HIV status. Of those who reported experiencing some form of verbal abuse as a result of their HIV status, 40.4% reported that since going on ART, this experience of verbal abuse had either

stayed the same or had intensified. The majority (85.4%) of people in the study had not experienced physical abuse as a result of their HIV status, but among those who reported having been physically abused, there was twice the proportion of females (17.7%) compared to males (9.7%).(93, p.13) However, through the efforts of funding agencies, the National Department of Health (NDoH), the NACS and its partners, the up-scaling of VCT in the country has had a significant impact in measuring the real magnitude of the HIV situation in PNG.(7,56)

With the national HIV incidence levelling off (79), there has been a renewed call to focus more on the secondary and tertiary prevention of HIV and AIDS, and for primary prevention efforts to be concentrated among most at-risk groups such as sex workers and their clients, together with vulnerable sub-groups such as those living with HIV and AIDS.(91)

Primary prevention should continue to be the main focus in the study area, as it is a low HIV prevalence province when compared to the other provinces in the country.(78) The public health implications of a decrease in HIV primary prevention would be an absence or lack of HIV awareness and education among the general population, especially among sub-groups that are most at risk of acquiring the disease. Thus, primary prevention interventions in HIV and AIDS should be sustained and up-scaled. Arguably, HIV primary prevention activities should be improved with the inclusion of better health promotion intervention designs that incorporate a robust evaluation framework within respective HIV interventions, to measure the project outcomes.

## 2.4. The Challenges of Evaluating Health Promotion Programs

The program implementers in many developing nations are presently learning about systematically evaluating their interventions. However, in the process of learning about M&E there are challenges. Firstly, many of these challenges have been based around the area of capacity building for staff. The implementers of programs are largely non-government organisations (NGOs), and faith-based organisations (FBOs). In this thesis, the NGOs and FBOs are grouped together and will be referred to as community-based organisations (CBOs), because they deliver services at the community level. The required capacity building areas range from data collection to understanding the concept of evaluation. A qualitative study conducted by Kegeles et al. (9) in the United States of

America, (USA) examined the challenges of building evaluation capacity among CBOs. The study involved 21 CBOs, 12 funders, and 11 technical assistance (TA) providers.(9) The study found that many CBOs found it difficult to conceptualise and design evaluations of their preventive programs, due to the fact they did not have appropriate skills required for the task. According to the CBOs staff, the process was unclear. The TA providers reported that the task of evaluating interventions seemed too complex, scientific and beyond the capacity of the CBO staff to conduct. The study also reported that the major capacity issue for the CBOs was their need for assistance in developing and using the evaluation tools in order to generate useful data. Furthermore, collecting and analysing data was a challenge faced by CBOs, especially in analysing data. Staff turnover, lack of time, and insufficient knowledge of M&E, were also mentioned in the study as factors that impeded the capacity to evaluate HIV prevention interventions. Challenges were faced in setting clear program goals and objectives. The study also reported that there were negative attitudes towards evaluation. It was feared that the findings of evaluations might reflect poorly on the CBO staff and would have implications on future funding.(10,94)

The second challenge relates to attitudes towards evaluation. Staff of implementing programs perceived evaluation as a task that funders required and therefore did not claim ownership of the process.(9,12) Study respondents considered the expectations of the funding agencies as the primary reason for undertaking evaluations, and that they would not evaluate their program if it was not a requirement from the funding agencies.(10) This attitude is also reported in other similar studies.(3,10,94) However, positive reactions from the study participants reported by Kegeles et al. (9) indicated that there was a need to observe the positive effects of programs through the evaluation process. The lack of funding for evaluation activities and the shortage of technical assistance (TA) were expressed as a major barrier to conducting evaluations. Contracting external evaluators was costly and the programs could not afford TA on a consistent basis. Comparatively to the USA, PNG's capacity to evaluate HIV prevention programs is still low; however, the challenges in building capacity are generally similar.

Thirdly, the social and cultural environment can provide a huge challenge in evaluating HIV prevention programs. As widely reported, AIDS is a highly stigmatised disease because of its transmission and acquisition routes.(30,59) HIV is transmitted through sexual contact. The topic of sex is not often discussed openly in many cultures (95) and this may remain as the social norm.(96,97) HIV is also transmitted through illegal

practices such as injecting drug use. In addition, the types of sexual orientations practiced by people, such as homosexuality and prostitution, are acts that are often classified as immoral behaviour.(30) Program personnel who are involved in HIV prevention are often stigmatised and refused entry into communities to conduct research and evaluations on HIV prevention programs. In many countries, including PNG, AIDS is still difficult to discuss as a disease because of cultural taboos on discussing sexual matters openly.(67,98) Furthermore, religious teachings have reinforced the idea that AIDS is a disease that has arrived as a punishment from God, thus putting a label on AIDS as an immoral disease.(99) As such, the view of AIDS as an 'immoral disease' may affect CBO staff attitudes to people living with HIV given that it would affect evaluation outcomes.

Finally, various other barriers overlap. For example, one of the common characteristics of many public health programs is the emergency environment in which programs are launched. In the initial desire to respond rapidly to an epidemic, the programs are implemented to imitate the successes of offshore programs without the establishment of baseline data and without careful considerations of differences in cultures, resource needs and human resource capacities.(83) An additional challenge is the inability to conduct rigorous research designs. Some evaluators claim that the best methodology for assessing the effectiveness of HIV prevention programs is by conducting randomised controlled trials (RCT).(85) However, this is usually expensive, difficult to conduct, and raises ethical concerns relating to the study and control groups. RCTs require both financial and human resources (12,83) that are scarce, especially in developing countries such as PNG. RCTs are experimental studies with research designs that are intended to study a new preventive or therapeutic regimen.(85) Study participants are randomly allocated to a treatment/intervention group and a control/comparative group. The results of the research are assessed by comparing the outcomes from the treatment group to the control group. The outcome of interest will vary but may be the development of new disease or recovery from the established disease. To ensure that both groups are compared in an equivalent manner, study participants are randomly allocated to the two groups. Within the parameters of chance, randomisation ensures that the control and treatment groups will be comparable at the start of the research and at the end, with the same factors in place, such as having the same socio-economic status in both groups. Any differences observed in the outcome of the research between the two groups should occur without any bias.(85) Moreover, there are methodological constraints in conducting program effectiveness evaluations. Although some level of outcome evaluation is

conducted under financial and capacity constraints, the vast sea of competing HIV prevention programs in the absence of randomised controlled trial studies makes it difficult to observe the true effectiveness of specific prevention interventions.(100) There are difficulties in undertaking RCTs when interventions that prevention suffering and death, and already proven to be effective are being scaled up into another context, and may be viewed by the country or communities as unethical. In my experience this has commonly been a case in PNG making it untenable to be seen to deny services to a control group.

The challenges in evaluating HIV prevention programs are wide ranging and can vary, depending on the size of the programs, the location of the programs(rural or urban), and the kind of resources they have, such as funding, skills and logistics. Therefore, understanding the M&E challenges at the implementation level should result in some solutions for building better local capacity for conducting evaluations to measure the long-term impacts of health promotion interventions.

## 2.5. The Rationale for Program Evaluation

Evaluation has been described as a systematic investigation of the merit or worth of a program.(1,101-102) During the past three decades, the practice of evaluation has evolved as a discipline with new definitions, methods, approaches, and applications to diverse subjects and settings.(102-104) The concept of evaluation can be perceived as a study design to be used to assist programs in assessing the merit and worth of programs.(101) As defined by Rossi et al. (105), "Program evaluation is the use of social research methods to systematically investigate the effectiveness of social intervention programs in ways that are adapted to political and organisational environments and are designed to inform social action to improve social conditions". (105, p.4)

In program evaluation, most program managers assess the value and impact of their work all the time when they ask questions, consult with partners, make assessments, and obtain feedback.(106) The information is collected to improve the program. The term 'program' is defined here as 'any set of organized activities supported by a set of resources to achieve a specific and intended result'.(106, p.12) This definition broadly covers public health programs which include: (a) service interventions (e.g., a program that offers free breakfasts to improve nutrition for school children); (b) community mobilisation efforts (e.g., an effort to organise a boycott of imported agricultural produce to improve the

economic well-being of farm workers); (c) research initiatives (e.g., an effort to find out whether disparities in health outcomes based on race can be reduced); (d) advocacy work (e.g., a campaign to influence the state legislature to pass legislation regarding tobacco control); and (e) training programs (e.g., a job training program to reduce unemployment in urban neighbourhoods). What makes program evaluation different from any informal assessment is that program evaluation is conducted according to a set of guidelines or protocols that are systematic, consistent, and comprehensive, to assure the accuracy of the results.(1,106,107) The types of questions asked in a program evaluation depends on how long the program has been in existence, who is asking the questions, and why the information is needed.(106,108) In general, evaluation questions fall into one of these groups:

Implementation: Were program activities put into place as originally intended?
Effectiveness: Is the program achieving the goals and objectives it was intended to accomplish?
Efficiency: Are program activities being produced with appropriate use of resources, such as budget and staff time?
Cost-effectiveness: Does the value or benefit of achieving a program's goals and objectives exceed the cost of producing them?
Attribution: Can the progress on goals and objectives be shown to be related to the program, as opposed to other things that are going on at the same time? (108)
Impact: what positive, negative, expected and unexpected impacts did the program have?

All of the above are appropriate evaluation questions and could be asked with the intention of documenting program progress, demonstrating accountability to funders and policymakers, or identifying ways to improve a program.

Increasingly, evaluation is often conducted for accountability[7] purposes (109,110) as funding increases for HIV programs in developing countries.(111,112) Program evaluation is a tool with which to demonstrate accountability to the array of stakeholders, who for a given program may include funding sources, policymakers, state and local agencies implementing the program, or community leaders. In most cases though, the dominance of top-down upward accountability and results-based evaluation approaches impede participatory evaluation and learning-based approaches towards program

[7] **Accountability:** The responsibility of program managers and staff to provide evidence to stakeholders and funding agencies that a program is effective and in conformance with its coverage, service, legal, and fiscal requirements (CDC, Introduction to Public Health Programs: A self-study guide; 2005).

evaluation.(209)In addition, evaluation tends to concentrate on the successes of programs rather than on the mistakes and failures (195); which are lessons that could be learned from evaluation outcomes for forward planning and strengthening of health interventions.

Depending on the needs of stakeholders, program evaluation findings could demonstrate that the program makes a contribution to reducing morbidity and mortality or relevant risk factors; or that money is being spent appropriately and effectively; or that further funding, increased support, and policy change might lead to even more improved health outcomes.(106) By holding programs accountable in these ways, evaluation helps to ensure that the most effective approaches are maintained and that limited resources are spent efficiently.(113) However, Bornstein (109) argues that although M&E systems were introduced to enhance the accountability of NGO staff and better guide implementation, these systems often foster fear and deceit, resulting in systematic distortions of information and limited improvements of projects and their implementation.(109) In her study of South African NGOs, Bornstein found that donors increasingly dictate the terms that South African NGOs must satisfy in order to access international funding, and that most donors to South African organisations demand some form of logical framework in an NGO's application for funding. Donors also demand reporting in accordance with that framework. According to Bornstein, the difficulty is that for many NGOs these systems make little sense. The respondents in her study stated that the requirements were a distraction from their real work, confusing, redundant or destructive.

The reasons for conducting an evaluation vary from program to program. Firstly, an evaluation is carried out to gain insights into the program of interest; for example, to access the needs, and identify barriers and enablers for service delivery.(114) The task of evaluation encourages service providers to examine the operations of a program, including which activities take place, who conducts the activities, and who is reached as a result. In addition, evaluation will show how faithfully the program adheres to implementation protocols, but also enable flexibility in the implementation process if and when program outcomes change from the original program design.

Through program evaluation, programmers can determine whether activities are implemented as planned and identify program strengths, weaknesses, and areas for improvement.(106) For example, a treatment program may be very effective for those who complete it, but the number of participants may be low. Program evaluation may potentially

identify the location of the program or lack of transportation as a barrier to attendance. Armed with this information, program managers can move the location, change the meeting times or provide free transportation, to enhance the chances of the program actually producing its intended outcomes. Secondly, an evaluation is needed to change practices. For example, to set priorities for staff training, improve content of educational material, and assess effects of the program (114), and thirdly, an evaluation is conducted to find out how an intervention has affected the project clients, so that any necessary changes can be made.(114) For instance, an evaluation could be conducted to observe a change in healthy lifestyle choices, such as decreasing the number of concurrent sexual partners, to avoid the acquisition of HIV and other sexually transmitted infections.

When the target population of the intervention is well defined, the focus of the delivery methods of HIV prevention messages is clear and consequently leads to a comprehensive program evaluation. For example, in a training intervention in North California (United States of America), that targeted 'HIV negative heterosexual women attending family planning clinics', the intervention delivery modality included the demonstration of condom use, group discussions, exercises in goal setting, interactive activities, information sharing, lectures, role plays and videos, which were delivered by health educators.(115) The goal of the intervention was to increase the use of female condoms and increase protected sex. The intervention was based on the social learning theory. When evaluated, the intervention group was compared to the women's general health group. Significant findings from the study revealed that intervention participants were more likely to use female condoms, and that the intervention participants were more likely to practice protective sex using both male and female condoms.(115) In this example, the intervention group was specifically defined for a targeted intervention group earlier in the intervention; therefore, the delivery methods were purposely tailored for the intervention group.

In another US HIV prevention project conducted among African American women, the definition of the intervention group was more detailed when compared to the previous example. The target population was 'heterosexually active African-American adolescent females who sought sexual health services'. The definitions of the intervention group in this case were age, ethnicity, and gender specific, and were accessing a specific health care service at the time of the intervention.(42) The goals of the intervention were to

reduce STIs, increase condom use, increase communication with male partners about safer sex, and increase male partners accessing STI services. The intervention was underpinned by two behaviour change theories: social cognitive theory and theory of gender and power. The intervention deliverers were African-American female health educators. Not only was the intervention group specifically defined, but it was gender and culturally sensitive as to who would deliver the intervention effectively. The delivery methods included group discussions and sharing of information, exercises and games, printed material, role play, telephone reinforcement, and vouchers for STI services. The evaluation of the intervention showed that there was a decrease in new chlamydial infections among the intervention group when compared to the comparison group, increased condom use at last sex, and an increase in consistent condom use over the past 14 and 60 days.(42)

Although program evaluation may be perceived by staff of CBOs as being too technical and complicated to conduct, a clearly defined intervention population with tailored delivery methods, coupled with suitable health behaviour change theories, should in theory, successfully facilitate evaluation of STI and HIV prevention projects at the community level. In practice, it is often more difficult. Eke et al. (89) found in their study of 18 community-based HIV prevention programs in the United States that the intervention characteristics identified for strong programs included the use of health behaviour change theories. Eke et al. reported that the HIV prevention programs that adopted theory-based interventions had clearly defined goals and objectives which corresponded well with the intervention activities. In their study, the authors reported that program managers displayed knowledge and skill in using the elements of a theory, and were able to plan and explain their interventions based on research findings. The program managers acquired the information from local social and behavioural scientists who contributed to program development and program evaluations.(89) Eke et al.'s study findings could be applicable to the PNG context to increase evaluation capacity in health interventions. Generally, PNG has a lower level of evaluation capacity in health promotion programs and as such, capacity should be built around well-defined intervention populations, delivery methods, and health behaviour change theories. This should successfully facilitate evaluation of STI and HIV prevention projects at the community level.

Initially, little was known about how to change risk-related behaviour. Interventions were based on trial and error, rather than on theory-driven health behaviour

models. Health care personnel and community-based organisations (CBOs) rushed to put together innovative preventive programs to respond to the need for behaviour change among those at greater risk of HIV infection.(30) Program developers had good intentions but were frequently not skilled enough in health education and evaluation. Funders allocated huge sums of funds to program implementation compared to the program evaluation. While this problem has been identified and rectified in developed nations, many developing countries are still in the implementation stages of their programs and evaluation budgets are often insufficient.(9, 10, 94)

The current methods of evaluation that are commonly used in developing nations fail to measure long-term behaviour change among the users of the HIV prevention interventions. They show weak associations of behaviour change compared to the overall goal of the interventions. This may be because the evaluations of HIV preventive interventions are predominantly facilitated by funding agencies.(3,4) The M&E processes are often driven by achieving the project indicators, rather than observing long-term sustainable behaviour changes.(109) The project indicators tend to assess short-term impacts, which are measured by process monitoring (that is, the collection of project data that show quantity outputs). Processed data show, for example, how many training sessions were conducted, how many condoms and brochures were distributed, how many STIs were detected in a month, and so on. Thus, in an evaluation that focuses on evaluating the achievement of project indicators, the behaviour changes desired for the prevention of HIV acquisition are distorted or lost.

A common evaluation approach used in developing countries is referred to by Bamberger et al. as the '*shoestring evaluation'*.(4) The common features of a shoestring evaluation are that it does not have any baseline data; it is not driven by a behaviour change theory; it is usually conducted by external evaluators. A shoestring evaluation attempts to observe impact evaluations of a project under the circumstances where there are time, data, and budget constraints. The approach was originally developed to assist evaluators working in developing countries where the budget, time and data constraints were most severe (4) and often when the end for evaluation was negelcted in the orginal project design. As reported by Bamberger et al., the typical scenarios in which shoestring evaluations are conducted are when:

- the evaluator is called in on short notice;

- the evaluator is given limited funding but has time to conduct the evaluation;
- the evaluator is called in after the intervention is well advanced but has no baseline data;
- the evaluator is constrained by time and funding; the evaluator has very little time and no access to a control group; the evaluator is called in late and does not have access to baseline data and a control group; and
- the evaluator is called in late and is given a limited budget, has no baseline data, and no control group.

Among the methodological concerns of shoestring evaluations are that they often skip certain stages of the evaluation process. Many HIV prevention implementers conduct process evaluation and skip the formative, impact and outcome evaluations, due to the limitations of time, funding and resources.(30) Evaluations in HIV preventive interventions are often conducted on an ad-hoc basis, and often well into the implementation of an intervention, which makes it challenging to observe trends in intervention impacts and outcomes, and to "respond" meaningfully to the results of the evaluation..

In contrast, the theory-based model of evaluation avoids many of the pitfalls that threaten evaluation. It helps to ensure that the developments being studied are good reflections of the things that matter in the program, and that the results identified in the evaluation are firmly connected to the program's activities.(116) Tracking the stages of effects as they progress makes it more plausible that the results are due to program activities and not to outside events or artefacts of the evaluation, and that the results can be generalised to other programs of the same type. Tracing developments in mini-steps, from one phase to the next, helps to ensure that the evaluation is focused on real effects of the real program, and that the hidden assumptions within the program are surfaced and tested.(1,117) The theory-based model of program evaluation is further discussed in the next sub-section (2.5.1).

### 2.5.1. Theory-based Evaluation

A theory-based evaluation (TBE) examines programs that are underpinned by a theory which attempts to explain how programs produce the desired effects.(118) The definition used in this thesis is cited by Fitz-Gibbon and Morris: *"The term theory-based*

*evaluation means an evaluation based on a model or theory about how the program works; a model or theory which indicates the causal relationships operating in the program*".(118, p.178) According to this definition, the focus of an evaluation is to observe a causal relationship between the theory applied as the input and the desired health behaviour change as the outcome. In discussing TBE, the definition of theory is expressed as a set of beliefs or assumptions that motivate action.(119) According to Weiss (119), programs are inevitably based on a theory, often on several theories, about how activities are expected to bring about the desired change.

Theory-based interventions with different populations using various types of delivery methods, have been widely documented (42,115,120-126) and evaluated using theory-based evaluations.(120,127,128) In many of these interventions, the evaluators have been sourced externally. Internal or local capacity in program evaluation has to be maximised, as there are program benefits in increasing knowledge and skills in program evaluation. Such benefits include consistency in evaluation, local ownership by the program and the communities it serves, cost-effectiveness in depending less on external evaluators, clear program direction and planning, and observations in the trends of behaviour change among program clients.(129) The common situations where theory-based evaluation can be used are: firstly, when the program to be evaluated is itself based upon a theory, and, secondly, if a program aims toward intangible outcomes. These are programs whose outcomes are not observable within one or two years.(129) Theory-based evaluations have helped open the 'black box' of programs.(117) The black box is the space between the actual input and the expected outcome of the program.(117) A black box evaluation is one that describes an evaluation that analyses what goes in and what comes out, without information about how things are processed in between, as illustrated in Figure 3 (130) using the distribution of condoms as an example.

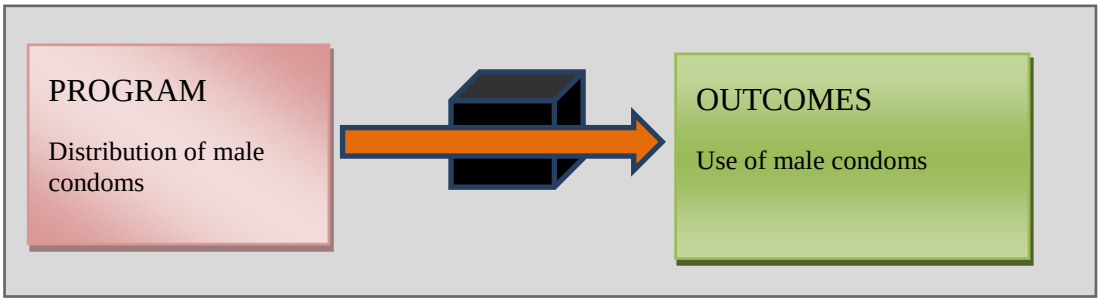



**Figure 3. Black Box Evaluation**

TBE offers a way in which an evaluation can show how much change has occurred, how the change has occurred, how the steps in the evaluation process have transpired as expected and unexpected, and at what point the breakdown in the program occurred.(119) One of the main reasons for interest in TBE is that, despite the sophisticated experimental evaluations, TBE is able to explain the program's successes and failures.(118,119)

Discussions on TBE have increased in recent times after programmers were unable to understand the ineffectiveness of programs that were evaluated using the method-oriented approaches. The method-oriented approaches have been unable to open the 'black box'.(117) Thus, the methods-oriented approach[8] has had some serious limitations in evaluating the value of programs. This approach was able to demonstrate that the programs were not working but were unable to explain why and how they were ineffective. For a while evaluators concentrated their efforts on developing a methodology for verifying the internal and external validity of programs, but they failed to specify the reasons behind the ineffectiveness of programs.(117,118,131) As such, mainstream evaluators have been criticised for spending time and energy, not only in developing evaluative methods in general, but also for spending too much time on methods to evaluate programs using randomised experimental designs (117) which, according to Chen and Rossi, fail to explicitly specify theory.(131) Internal validity in research methods is the extent to which the results of a study reflect the true situation in the study, in which the findings of the study are not influenced by such factors as chance, bias and other confounding factors.(85) External validity, also known as generalisation, is the extent to which study results are applicable to populations other than the study population. The application of generalisation presumes that if a study is not internally valid, then the results should not be applied to the wider population.(85)

Chen and Rossi, who first raised the concept of theory-driven evaluation in 1980 (131), argued that evaluation, at that time, was dominated by models based on methodological choices rather than on program design (method versus theory). According to Chen and Rossi, theory-driven evaluations would be more likely to discover the effects of interventions, on the grounds that theory-driven evaluations would identify and examine

[8] The methods-oriented approach is an approach to designing evaluation that tries to demonstrate a rigorous research design to validate the findings.

a larger set of potential program outcomes. They proposed that, without a theory, the goals of programs are unclear, measures are false, and that those evaluations without theories are merely 'social accounting studies' which enumerate clients, describe programs, and sometimes count outcomes.(116) Furthermore, they argued that without a theory driving a program, the black box is empty. Thus, evaluation should provide good social science theory. Theory should provide steps to follow in the evaluation, study treatment, discuss stakeholders' and evaluators' views on outcomes, examine why and how a program fares.(132) Weiss addressed the issue from a different perspective but agrees with Chen and Rossi that insisting on aiming for instrumental or methods based evaluation is pointless, because programs are necessarily confused due to how the decision making takes place within programs. Weiss proposed a variation of Chen and Rossi's theory-driven evaluation and called it 'theory-based' evaluation (TBE). She suggested that evaluators should come to terms with the way decisions are made, and try to influence decision making in a more indirect way.(117,133) Weiss argues the black box is full of many theories which she calls 'theories of change'.(119,134) These theories take the form of assumptions and tacit understanding, and are applied in the same program.

A further debate on method-oriented evaluation came from Pawson and Tilley's 'realistic evaluation'.(135) The realistic approach is based on a generative theory of causality. Pawson and Tilley argue that it is often difficult to say whether a change can be attributed to the program. Therefore, the evaluator should elaborate how the mechanism could work in a given context and asks the people who know the programs to provide the evidence.(117,135) For Chen and Rossi, good theories should fill in for no theories; for Weiss, better theories should replace the theories that are not working, and for Pawson and Tilley, theories are only useful depending on what people do with them.(117) Theory-oriented evaluations present an attitude of change towards methods. The theory-oriented approach is that no method should be seen as the gold standard. Theories should be made explicit and the evaluation steps should be built around the theory and, in turn, reveal the causal association between the theory and the program outcome.(117) This thesis takes into account all three arguments collectively in its approach to TBE: i.e., (1) a theory should be explicit; (2) evaluation should be built around the theory; and (3) evaluation should reveal the casual association. However, in HIV prevention programs, it is not always possible to determine an association between cause and effect given the many different factors that could be contributing to the effects of the interventions. It is appropriate to talk about the

contribution that a program made to change processes rather than attempt to identify direct causes and impacts.(212,213)

In a behaviour change program, a TBE can be beneficial to the overall intentions of the program. Firstly, the theory drives the intervention.(118) The model of the behaviour change strategy knows from the beginning what specific behaviour is to be changed and at what stage of the behaviour, should the change take place. By knowing the stage of the behaviour, appropriate behaviour change theories can be applied, because various behaviour change models operate in stages.(136) Secondly, an advantage of a TBE is that it presents a rationale for the choice of variables to study. Many evaluations in HIV preventive interventions are predominantly atheoretical.(22) Rarely does the evaluator present any rationale for the choice of variables of an intervention. In a TBE, the assumptions are exposed, thus making the evaluation more transparent. Thirdly, the results of a TBE are comparable. For example, in an experimental design group, an evaluator might examine the success of the experimental group to the control group, and compare how it is associated to the manipulation of the variables identified by the theory.(118) The comparison is therefore able to show a causal relationship operating between the independent and the dependant variables of measurement.

Nevertheless, this is not to say that TBE does not have its limitations. A theory-based evaluation needs careful explanation and requires educated and informed evaluators.(118) The operationalisation of the theory requires familiarity with diverse theories and greater flexibility in designing the evaluation compared to an input and output analysis.(119) Program theory[9] can be unclear. According to Weiss, programs are usually designed on the basis of experience, practice knowledge and intuition, and practitioners go about their work without articulating the conceptual foundations of what they do.(119) Theories do not have to be correct, and they do not have to be uniformly accepted. They are the hypotheses on which people, consciously or unconsciously, build their program plans and actions.(102) Other problems of TBE include: confusion about the components of the theory; the theory applied to the program may not be the only possible theory; it can be difficult to construct program theories, TBE makes heavy demands for data and resources, there can be measurement errors, analysis is demanding, results may not generalise to other populations or situations, and there is need for comparison with other studies.(119) Another

[9] Program theory is discussed in section 2.5.2

limitation of the TBE approach is that the theory may only be applicable to certain contexts.(119)

### 2.5.2. Program Theory Evaluation

A program theory is an explicit theory or model of how an intervention, such as a project, a program, an initiative or a policy, contributes to a chain of intermediate results and finally to the intended or observed outcomes.(130) Ideally, a program theory has two components: a *theory of change* and a *theory of action*. The theory of change is the process by which individuals, groups or communities, make a change to accomplish the intended behaviour as promoted by the intervention. The process could be a psychological, social, physical or an economic process. The theory of change is derived from a scientific theory of change, or from a tactical understanding about how things work. For example, the theory of change underpinning a health promotion program could be that changes in perceived social norms lead to health behaviour change (Theory of reasoned Action, Table 5).

A black box evaluation is an evaluation without a program theory.(130) It can be difficult to interpret results from an evaluation that has no program theory. An evaluation with program theory tries to understand the causal process that occurs between the beginning (input) and end result of the program or intervention. Funnell and Rogers (130) use the diagram below (Figure 2) to illustrate the use of evaluation with a program theory. The program theory approach tries to understand the causal processes that occur between 'delivering apples and improved health'. The logic model diagram in Figure 2 illustrates a male condom program in terms of inputs, processes, outputs, and outcomes. The diagram in Figures 2 and 3 is developed by Funnell and Rogers (130) in which the distribution of apples was used, in their book, as an example to promote the intake of vitamin C. The example of male condom distribution was used for my study.

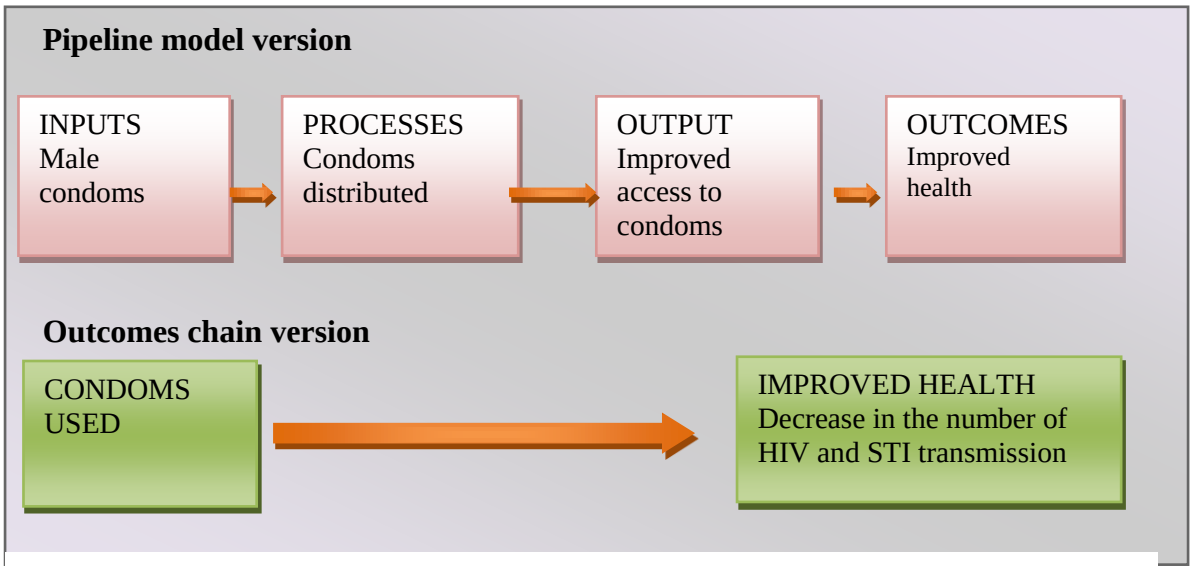



**Figure 4. Simple Pipeline and Outcomes Chain Logic Models**

In Figure 4, the pipeline model shows that the distribution of condoms is understood to be part of the causal chain, rather than some other variable. But this model does not explain how the distribution of condoms leads to improved health. A likely explanation would be that distributing the condoms increased the availability of condoms, which leads to the use of condoms, which decreases STI and HIV infection, which improves the sexual and reproductive health of the program participants.(130) This thesis acknowledges that HIV prevention interventions are complex with other factors affecting the process such as relationships, cultural practices and social norms. Nonetheless, Figure 4 is used in this thesis to demonstrate a simple linear program theory in condom distribution for HIV prevention.

Figure 5 represents a program theory that articulates the causal mechanisms involved in producing the theory of change (changed behaviour and changed health status) and theory of action (distribution of condoms and improved access). The first change relates to participants' willingness to act in the way the program intended, while the second change relates to the impacts of the actions.

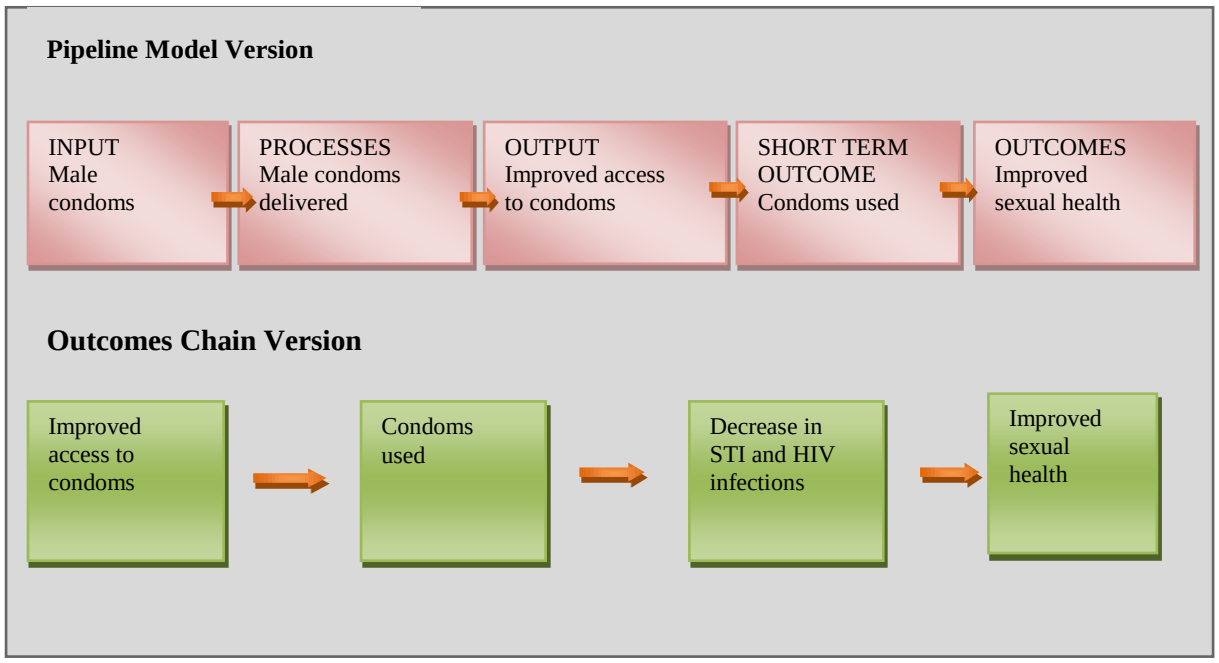



**Figure 5. A Logic Model Showing a Simple Program Theory for Condom Distribution**

There are significant challenges for program theory when it is used to evaluate interventions with complex aspects (139), and thus not all evaluators have been convinced that program theory is feasible. For example, Stufflebeam (140) argued that program theory evaluation makes little sense because it assumes that the complexities of variables in running projects can be worked out with assumptions to determine the evaluation questions.(140) Pinnegar (141) questioned the value of complex programs, and suggested that complex programs tend to be too difficult to explain their objectives in tangible terms, too vague and too difficult to meaningfully evaluate.(141) However, for less complex interventions such as many of the HIV prevention interventions in the manner in which they have been implemented in Papua New Guinea, it is more realistic to expect that programmers be given the knowledge of how a program theory evaluation works and its significance as an M&E model for measuring project outcomes. Furthermore, although evaluation may be perceived as too academic and technical by staff of HIV prevention programs at the community level (9, 10, 142), this thesis argues otherwise. If behaviour change theories can be simplified to suit the social, institutional and cultural context of the program, it can be applied together with other evaluation models to achieve changes in positive healthy living.(126) Overall, this argument supports the conclusion drawn by

Ruch-Ross et al. (142) , that although the evaluation of community-based programs is challenging, the process of TBE is beneficial to program quality and helps to ensure that the partnership between evaluators and service providers meets the needs of the target population beyond the initial funding period. A combination of specific, realistic requirements and more extensive technical assistance may both reduce the burden and enhance the results of evaluation efforts by community-based organisations. Making evaluation an integral part of community-based programs requires an initial investment of time and money by both program staff and funders, but the potential for lasting benefits for programs and communities is significant.(142)

## 2.6. Behaviour Change Models and Theories

In an assessment of HIV prevention programs, frequently cited theories used in HIV prevention interventions include the AIDS risk reduction model, cognitive-learning theory, diffusion of innovation theory, empowerment theory, harm reduction model, health belief model, theory of reasoned action, and transtheoretical model.(89) All the theories cited by Eke et al. (89) are models of health behaviour change aimed at the individual or community level. Table 5 summarises the theories and models frequently used in HIV prevention programs.(30)

**Table 5. Common Behaviour Change Theories and Models used in HIV Prevention**

| **Theory** | **Date developed** | **Description and how it is used in HIV prevention** |
|---|---|---|
| COGNITIVE INDIVIDUAL LEVEL | | |
| Health Belief Model | 1966 (Irwin M. Rosenstock) | The health belief model is a psychological model that attempts to explain and predict health behaviour. This is done by focusing on the attitudes and beliefs of individuals. The model is based on the understanding that a person will take a health-related action (e.g., use condoms) if he or she:<br>1. Feels that a negative health condition (HIV) can be avoided;<br>2. Has a positive expectation that, by taking a recommended action, he or she will avoid a negative health condition (using condoms will be effective at preventing HIV);<br>3. Believes that he or she can successfully take a recommended health action (use condoms comfortably and with confidence). |

| Theory | Date developed | Description and how it is used in HIV prevention |
|---|---|---|
| Social Learning Theory/ Social Cognitive Theory | 1941 (N.E. Miller & J. Dollard)<br><br>1962 (Albert Bandura) | This theory assumes that if one was motivated to learn a particular behaviour, then that particular behaviour would be learned through clear observations. By imitating these observed actions the individual observer would solidify that learned action. People learn by observing others, with the environment, behaviour and cognition being the main factors in influencing change. |
| Theory of Reasoned Action (TRA) | 1975 (Ajzen & M. Fishbein) | TRA suggests that a person's behavioural intention depends on the person's attitude to the behaviour and a subjective norm. In TRA, attitudes toward the expected outcome of a behaviour and the influence of other people, are the major predictors of behavioural intentions. |
| Protection Motivation Theory | 1975 (R.W. Rogers) | The Protection Motivation Theory proposes that the intention to protect oneself depends upon four factors:<br>1) The perceived severity of a threatened event (e.g., a heart attack).<br>2) The perceived probability of the occurrence, or vulnerability.<br>3) The efficacy of the recommended behaviour.<br>4) The level of confidence in one's ability to undertake the recommended behaviour (self-efficacy). |
| Relapse Prevention Theory | 1985 (G.A. Mallat and J.R. Gordon) | Relapse prevention is about preventing its occurrence. According to this theory, lapses are to be expected, but they should not be perceived as a treatment failure. But lapses are problems that should be addressed. |
| STAGES INDIVIDUAL LEVEL | | |
| Transtheoretical or Stages of Behaviour Change Model | 1988 (J.O. Prochaska & C.C. DiClemente) | The transtheoretical model posits that health behaviour change involves progress through six stages of change: pre-contemplation, contemplation, preparation, action, maintenance, and termination.<br>Pre-contemplation: Unaware of problem, not thinking of or wanting to change.<br>Contemplation: Aware of problem and thinking about taking action.<br>Preparation: Getting emotionally ready and intending to act.<br>Action: Taking the necessary action.<br>Maintenance: Keeping up the necessary action. Not backing out or slowing down.<br>Sustaining: Continuing the necessary action to remain healthy. |
| AIDS Risk Reduction Model | 1990 (J.A. Catania) | ARRM focuses on social and psychological factors hypothesised to influence: (1) labelling of high risk behaviours as problematic, (2) |

| Theory | Date developed | Description and how it is used in HIV prevention |
|---|---|---|
| | | making a commitment to changing high risk behaviour, and (3) seeking and legislating solutions directed at reducing high risk activities. |
| COMMUNITY LEVELTHEORIES | | |
| Diffusion of Innovation Model | 1962 (E.M. Rogers) | The model seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Influencing attitude is based on communicating new ideas via opinion leaders and through social networks. |
| Social Action Theory | 1983 (Max Weber) | Social action theory seeks to understand how individuals determine and negotiate between their personal desires and the social pressures that largely determine their actions. It also tries to understand the relationship between social structures and the individuals whose behaviour and actions produce them. |
| Organizational Stage Theory | Mid 1930s (Kurt Lewin) | This theory seeks to understand the environmental conditions of HIV affected communities, such as in groups like MSM, FSW, and the homeless. The theory is applied in specific geographic or target populations and addresses the limitations and the barriers to function in a specific population or environment. |

The models described in Table 5 are most suited for behaviour change at the individual level, specific population level (high risk groups) and at the organisational level.

Behaviour science theory is recommended as a foundation for health promotional programs, as increasing evidence suggests that HIV preventive interventions that are theory based have a greater impact than those that are not.(124, 127, 128, 143-146) Based on the literature reviewed in this study, the evaluation of HIV prevention programs indicates that the best evidence-based preventive interventions are studies that have an in-built evaluation process in the project design which includes a baseline, process monitoring, and several follow-up studies during the period of the intervention, at the end of the study, and several months after the completion of the intervention, if funding and time are available.(22) In addition, these interventions are theory-based. The 2011 *Compendium* (147) compiled by the Centers for Disease Control and Prevention (CDC) presented a systematic review of evidence-based HIV behavioural interventions identified from the scientific literature. The evidence-based HIV behavioural interventions listed in the *Compendium* have been identified by an ongoing systematic review process and are classified as either best-

evidence or good-evidence. These interventions represent the strongest HIV behavioural interventions in the literature that have been rigorously evaluated and have demonstrated evidence of efficacy. The *Compendium* includes individuals, groups, and community-level behavioural interventions for high-risk populations. According to the compendium, the best behaviour change interventions were those that were underpinned by behaviour change theories and had an evaluation arm as part of the project design.(147)

Some studies have found implicit theories within HIV prevention community-based organisations.(148,199) For example, Freedman et al. (199) conducted a formative research study about what HIV prevention providers believed to have promoted risky behaviour and facilitated behaviour change. The study focused on providers who worked directly with clients, to uncover providers' implicit theories. The research was conducted across several communities and targeted high risk groups to uncover any commonalties among the various groupings. The research involved 20 in-depth interviews with HIV prevention providers from five CBOs in the San Francisco Bay area. Although the research focused on widely diverse populations, there was a tremendous amount of overlap in what they believed was at the core of behaviour change. Overall, the providers' description of their understanding of how to change clients' risk behaviour was summarised in three words: *community*, *context*, and *change*.

*Community* – According to their theory, the most central theme was community. Many prevention workers believe that it was crucial to build a sense of community, a connectedness to others, especially among populations who have been disenfranchised and who were at high risk for HIV. Building community often involved coming together in different fashions: a retreat, a support group, a dinner, a drop–in centre. The process of building community also served to develop and increase self–esteem. Prevention workers believed that building client self–esteem was key to beginning to reduce the risk of HIV transmission. They believed that their clients had to feel worthwhile before they could care about protecting themselves. Providers thought of community as allowing clients to begin to feel more confident and trustful, similar to providing a comfortable and safe space and unconditional support. As many clients lived in hostile environments, being in a safe space where they could open up and discuss important emotional issues without fear of being judged was frequently reported as a key step before being able to learn about HIV prevention.

*Context* – Providers noted that HIV was not the clients' greatest concern. Issues of social injustice were roadblocks to HIV prevention, as they undermined a sense of connectedness and community that mitigated addressing HIV risk. Large–scale structural issues such as racism, homophobia, abuse, violence, poverty, and homelessness, were seen as more important to address than smaller interpersonal issues, such as condom use. Most providers felt it was too hard to deal with safe sex and drugs without first addressing bigger issues such as homelessness, violence, or unemployment. Many providers reported a desire to integrate HIV prevention into addressing other aspects of life and life problems. Providers reported high levels of frustration at not being able to adequately address these bigger issues in their programs. Furthermore, the cultural context, such as sexual taboos, gender issues, and religion, made it difficult for people to talk about sex and sexual issues, which made sexual risk reduction difficult.

*Change* – Once the larger issues were acknowledged and addressed, and the personal and interpersonal work of community building commenced, then providers could directly focus on HIV risk behaviour.(199) The research by Freedman et al. (199) found that the theories of change were based on acknowledging larger structural factors and providing a sense of community. They recommended that identifying HIV prevention service providers' implicit theories is useful to CBOs and researchers, in helping to clarify circumstances that encourage HIV-related risk behaviour among at-risk populations, and inform program development and formal evaluation efforts.(199)

A limitation of the Rossie et al. (105) study is that, as a qualitative study, it only used one data collection instrument (in-depth interviews), which does not allow for data triangulation. The research also involved a small number of organisations (five CBOs) which makes it difficult to generalise the findings. However, the findings of the research have a significant implication through the enabling of the providers' implicit theories. It is important to acknowledge and inquire about prevention implicit theories. This is because service providers work directly with clients, have strong beliefs and assumptions about behaviour change, and operate under these beliefs and assumptions. This is not to advance or privilege the providers' theory above an agency's theory or scientifically tested theories, but simply to capture and articulate these theories.(199) The process of articulating implicit theories can help HIV prevention service providers examine why they do what they do. Once articulated, it may explain a disconnection (if any) between what service providers

think and do, when compared to what the decision-making agencies hope to get implemented at community level. An additional benefit of implicit theories is that they have a deep knowledge of the local context of issues affecting health intervention programs(148); which are the social and cultural dynamics, the relationship networks, and the gender and social norms of the society. Furthermore, most prevention providers, guided by their personal observations and experiences, also develop theories. Although these theories may be informal, they help to explain why things happen or how things work, at community level.(148)

## Conclusion

HIV is an infection that has several layers of behaviour that influence risk, access to prevention, and prevention. AIDS has been used as a case study in this research project and the literature reviewed was focused on HIV. AIDS does not have a cure (44,46,149), so the only way to minimise the spread of the disease is through prevention.(149) Recent data from PNG suggests a levelling or downward trend in HIV prevalence in the country.(56,78) Faced with poor socio-economic conditions, the prevalence of HIV in PNG could rise again (36) if there is complacency in primary prevention. Primary prevention of HIV and AIDS is still a key public health intervention. Various levels of intervention have been carried out in PNG, with reviews and evaluations conducted for some of these programs, for which community-based organisations are mainly at the forefront of conducting primary prevention to stop new HIV infections.(7,77,150)

Evaluating community-based interventions is challenging, due to a lack of trained indigenous capacity in conducting M&E.(19, 151) However, there is a gap in the literature on M&E capacity building that is theory-driven. Although the literature explicitly shows that health behaviour change theories and models are used in HIV interventions (30), the use of scientific and indigenous health behaviour change theories in health promotion programs has not been clearly understood in PNG, unlike in other countries.(152,153) Many HIV and STI prevention implementers see no relevance of theory to their work.(3) Many front-line implementers and project managers have no training in health behaviour change theory, and therefore cannot easily see a direct link between theory-based interventions and the public health issue they are addressing.(3,4,148) Hence, one of the main focuses of this study has been to solicit information from the implementers on

potential existing local health behaviour change theories that might be relevant to their understanding of how health behavioural science theory can be applied in their work.

The next chapter (Chapter 3) describes the study design and process.

## Chapter 3. METHODOLOGY

The objective of this study was to investigate the facilitators and barriers for indigenous program staff and managers to conduct realistic, reliable and valid evaluations of health promotion interventions in PNG, using the HIV prevention programs as a case study. The four aims of this chapter are to:

- Describe the research methodology of this study;
- Explain the sample selection;
- Describe the procedure used in designing the instrument and collecting the data;
- Explicate the procedures used to analyse the data;
- Discuss any challenges faced and limitations of the study.

### 3.1. The use of Case Study

The use of case study as a methodology in research lost its legitimacy (over the years) as a concern that results from it could not be generalised, and that findings from qualitative research were less valued by the funders of the research.(214) Case studies have since become reputable due to widespread acceptance in the areas of evaluation, educational research, policy analysis, and action research for the following reasons; for in-depth understanding in the broad range of factors that contributed to the success or failure of innovations, to capture the complexity of the interactions as the innovative ideas were interpreted in practice, and to understand the uniqueness of each case.(214, p.229)

A case study approach was chosen for my study for the following reasons. To; a) understand the study participants descriptive and constructive perceptions of evaluation, b) present an authentic experience of the HIV intervention programs in the study location (as an outcome of the study); and, c) present multiple perspectives of views from the study participants in order to provide increased understanding of the issues researched. Simons (214) states these three reasons as ones which have supported the return of case studies as a methodology in research.(214, p.229) In a counter-argument to the view that case study is a qualitative research, Simons argues that multiple methods can be used in case studies to draw out reliable data (215) as both qualitative and quantitative methods could be used.

Furthermore, the context of my research project required a case study. I was interested in exploring understandings and program evaluation capacity in primary health promotion. It was impossible to conduct a large study incorporating all primary health

promotion interventions in Papua New Guinea. Given the timeframe of my PhD candidature, the resources I had, and my familiarity with HIV and AIDS prevention interventions in PNG, a case study of a specific disease (HIV and AIDS) was selected.

## 3.2. The Study Design

A three-phased qualitative research design was used in the research. The study observed organisational[10] attitudes and practices of evaluating behaviour change interventions. The observations were carried out over a period of two years from January 2011 to January 2013. An evolving methodology was utilised which consisted of three stages of data collection. A serial data collection methodology was selected to observe the M&E process among organisations and the changes in attitude and perspectives of study participants at three different time points. Different methods of data collection were used over the different time points to ensure consistency in the data collected. For example, when there was inconsistent information found in the first phase of the study, the information was cross checked during the second phase of the study. Information was mostly crossed checked in the third phase of the study. Triangulation[11] of the data gathered over the three time points was crucial to improving the validity of the findings.

A research design using qualitative methods was the appropriate research design to use in this study, because the study was conducted to understand the local skills and knowledge in program evaluation, and how these skills and knowledge could assist in better promotion of sexual health. Qualitative methods provide an insight into peoples' understanding and experience of the topic that is under investigation.(160)These methods describe the kinds of characteristics of people and events, without comparing events in terms of measurements and amounts.(161) A qualitative study involves the use and collection of a variety of materials such as case studies, personal experiences, life stories, interviews, observations, histories, interactions, and visual texts that describe people's lives.(162) In contrast, quantitative methods focus attention on measurements and amounts.(161)

[10] The unit of analysis is the organisation conducting HIV prevention in the province.

[11] Triangulation is used to compare the information gathered from all different data collection tools.

### 3.2.1. Phase One

As stated above, the study used three time points of observations (Table 6). The first phase was conducted between June and July of 2011. The aim of the first phase was to collate information on program evaluation on HIV and STI primary prevention programs in the Northern Province over the five year period 2008 to 2012. The first phase was necessary to conduct a situational assessment of the status of interventions in HIV prevention. As little was known about the HIV prevention programs in the study location, a situational assessment was essential to elicit the appropriate information required to design the next phases of the study. In addition, the financial assessment of logistics, additional staff, and resources were relevant information acquired during the first phase of the study, to design a cost-effective field trip for the two latter phases of the study.

A formative evaluation was not required for phase one as this was a research design and not an evaluation design. A formative evaluation would have been designed to inform the HIV interventions in the study location. Phase one was intended to inform the onward planning of this study and develop a description of the context of the HIV prevention programs.

Data collection during the first phase was specifically designed to gather information that would answer the first three of the five research questions; these three questions were:

1) What is the level of understanding, skills and experience in evaluation, among the program implementers?
2) What attitudes do program implementers have towards evaluating their own programs?
3) What are the barriers and facilitators in conducting evaluations to measure behaviour change?

The three research questions were investigated to address three research objectives (Table 6). Some issues explored in the first phase included: the background of existing HIV and STI prevention interventions; the understandings of evaluation; the M&E mechanisms in place; the attitudes towards evaluation; and the challenges faced in conducting evaluations. Other topics of interest researched in the first phase included: achievements of interventions, understandings of terms such as evidence based, future plans of programs, changes in the interventions, and interventions involving people living with HIV.

### 3.2.2. Phase Two

The second phase was conducted between May and June 2012 to observe the reactions towards program changes among the organisations. This phase of the study occurred during a transitional period when certain organisations reviewed and then changed their HIV prevention programs. As the intervention changes were unexpected, I had no control over the changes that occurred during the field work (phase 2). Therefore, while in the field, I had to make adjustments to data collection tools to facilitate the inclusion of changes on the ground to the study's purpose. For instance, there was a change in population-based education interventions to a targeted education intervention for female sex workers and their clients in two organisations in the province. This meant that interview probes prepared for questions on the evaluation of interventions for in-school youth were adjusted to accommodate the change for young female sex workers as an intervention target group. The flexibility of qualitative methods was an advantage for this study. The key difference between quantitative and qualitative methods is their flexibility.(163) Generally, quantitative methods are fairly inflexible. With quantitative methods such as surveys and questionnaires, researchers ask all participants identical questions in the same order. The response categories from which participants may choose are "closed-ended" or fixed. The advantage of this inflexibility is that it allows for the meaningful comparison of responses across participants and study sites. However, it requires a thorough understanding of the important questions to ask, the best way to ask them, and the range of possible responses.(163) Qualitative methods are typically more flexible. They allow greater adaptation of the interaction between the researcher and the study participants. For example, qualitative methods ask mostly open-ended questions that are not necessarily worded in exactly the same way for each participant. With open-ended questions, participants are free to respond in their own words, and these responses tend to be more complex than simply "yes" or "no". Participants have the opportunity to respond more elaborately and in greater detail than is typically the case with quantitative methods. In turn, researchers have the opportunity to respond immediately to what participants say by tailoring subsequent questions to information the participant has provided.(160,163)

During the second phase of this study, data was gathered to answer research questions four and five (Table 6):

4) Are there local theories of behaviour change, and how do they affect the implementation and evaluation of the national HIV and STI prevention policy?
5) Can workable evaluation models that are understandable, practical and sustainable, be developed and implemented?

The two remaining research questions were investigated to address the fourth research objective (Table 6). Study participants were interviewed on topics such as: local theories of behaviour change, understandings of behaviour change, linkages between national strategies and the implementation of prevention activities at the community level, existing M&E mechanisms in HIV & STI interventions, and clinical surveillance on HIV.

As phase two was conducted during the national elections, a scenario was also used to probe for indigenous behaviour change theory. The addition of a scenario was necessary as the changes in the HIV prevention activities were implemented outside of this study. Therefore, in-depth interviews were conducted to investigate how local implementers of HIV prevention envisioned sexual behaviour change from 'not using a condom' to 'using a condom with casual partners' during the election period, when there was a higher frequency of movement among the general populace. Public awareness campaigns of HIV and AIDS were conducted during the elections as a one-off HIV prevention activity where people congregated, such as Popondetta town. The pre-election public awareness campaigns were conducted as a one-off activity by two NGOs.

### 3.2.3. Phase Three

The third phase of the study was designed to specifically investigate behaviour change theories and models among the HIV prevention programs (if any existed) in the Northern Province. The third phase was conducted between December 2012 and January 2013. By this time, out of the nine organisations in the study location who had originally participated in phase one of the study, three organisations were no longer in operation, two organisations had undergone major strategic changes in their programs, and one organisation had moved from being a coordinating body to become an implementing agency. The third phase of the study also provided the opportunity to assess any changes in the HIV prevention programs that had occurred between the first and third phases of the study, and how these changes affected perspectives on behaviour change theories and the overall HIV primary prevention in the study area.

**Table 6. Research Objectives and Phases of Study**

| Study Objectives to: | Research Questions | Phases of the Study and Duration of field work | | |
|---|---|---|---|---|
| | | 1st Jun–Jul 2011 (2.5 months) | 2nd May–Jun 2012 (2 months) | 3rd Dec 2012–Jan 2013 (2 months) |
| Obtain information on the understandings of evaluation within the context of HIV and STI prevention from implementers. | • What is the level of understanding of, skill, and experience in evaluation among program implementers? | ✓ | | |
| Identify barriers and facilitators for evaluation in HIV prevention activities in Northern Province. | • What attitudes do program implementers have towards evaluating their own programs? | ✓ | | |
| Learn about staff capacity building in program evaluation within the various HIV and STI prevention interventions. | • What are the barriers and facilitators in conducting evaluations to measure behaviour change? | ✓ | | |
| Explore local behaviour change models. | • Are there local theories of behaviour change and how do they affect the implementation and evaluation of the national HIV and STI prevention policy? | | ✓ | ✓ |
| | • Can workable evaluation models that are understandable, practical and sustainable, be developed and implemented? | | ✓ | ✓ |

The study received an endorsement from the AIDS Committee in the Northern Province of PNG. The ethical approvals came from the PNG HIV and AIDS Research

Advisory Committee (RAC)[12], and the University of Queensland's Behavioural & Social Sciences Ethical Review Committee (BSSERC).[13] The study was funded by two awards under the Australian Government Overseas Aid Program (AusAID): the Alison Sudrajat Award and the Australian Leadership Award. Additional funding was received from the National AIDS Council Secretariat in PNG and the University of Queensland.

### 3.3. Selection of Study Participants

Purposive sampling was used. Purposive sampling groups participants according to preselected criteria relevant to a particular research question. Sample sizes, which may or may not be fixed prior to data collection, depend on the resources and time available, as well as the study's objectives. Purposive sample sizes are often determined on the basis of theoretical saturation (the point in data collection when new data no longer bring additional insights to the research questions). Purposive sampling is therefore most successful when data review and analysis are done in conjunction with data collection.(163) This sampling method was chosen because the study participants were selected from organisations working in HIV and STI prevention in the province.

During the first phase of the study, all nine[14] organisations working in the province were selected to participate. Most had fewer than five full-time staff working directly in HIV and STI prevention. Only two organisations had more than five full-time staff. One of these organisations with more than five staff was the provincial department of health (government), while the other was a FBO. Despite the provincial health department having more health workers compared to the other organisations, there were fewer than five staff working full-time in HIV prevention work. The profiles of the organisations are discussed in the next chapter (Chapter 4) of this thesis.

Within the organisations, study participants were included if they: 1) had worked in any HIV prevention program for more than three months; 2) worked in the Northern Province; and 3) spoke either English or Tok Pisin[15] languages. Firstly, study participants

[12] Appendix 1.

[13] Appendix 2.

[14] The nine organisations were not a sample of organisations. This was the total number of all organisations working in HIV and AIDS prevention in Northern Province at the time this study was conducted.

[15] Tok Pisin is a common language spoken and understood by the majority of Papua New Guineans.

had to be in a HIV prevention project for more than three months in order to know enough about the project to provide reliable information for the study. Secondly, the study focussed on the interventions in the Northern Province for the reasons discussed in previous chapters, thus implementers working in the province were required for the study. Thirdly, English and Tok Pisin are the commonly spoken and written languages used in PNG.

The study recruited a total of 54 participants from the nine organisations (Table 7). Thirty two people participated in four focus group discussions (FGD). There was one male focus group discussion, one female group discussion, and two mixed group discussions. Three FGDs were conducted in the first phase of the study to determine if there were gender differences in the answers provided. As no difference was found, later FGDs in phases two and three comprised of both male and female group participants. An additional 18 people were recruited as key informants to participate in one-to-one interviews. A total of 23 female participants and 26 male participants were recruited during the first phase of the study. An additional four men and one woman were recruited during the second phase of the study and participated in in-depth interviews, resulting in a total of 30 male and 24 female participants.

**Table 7. Data Collection Tools and Number of Study Participants**

| **Type of data collection tool used** | **Total no. of participants** | **Number of males and females** | **Managers** [16] | **M&E Role** | **Field Officers** |
|---|---|---|---|---|---|
| FGD | 32 | Males – 18<br>Females – 14 | 9 | 4 | 23 |
| Key informant interviews | 17 | Males – 8<br>Females – 9 | 5 | 2 | 10 |
| In-depth interview | 5 | Males – 4<br>Female – 1 | 2 | 1 | 2 |
| Participant observations | 15 observations | | | | |
| Non-participant observations | 23 observations | | | | |
| Total | 54 | Males – 30<br>Females – 24 | 9 (out of 54) | 4(out of 54) | 41(out of 54) |

[16] Same Managers and M&E staff were interviewed using different tools. There were very few managers and M&E staff

## 3.4. Data Collection

### 3.4.1 Tools

Six data collection tools were used during the three data collection phases (Table 8). The tools were generally utilised in the following order: document review, non-participant observations, focus group discussions, participant observation, key informant interviews, in-depth interviews, and journal of fieldwork activities.

The combination of data collection tools was strategically selected to complement each other in order to provide credibility to the primary data. There were three main reasons for the selection of these specific tools. Firstly, I had experience in collecting and analysing qualitative data, this experience being acquired in previous work. Secondly, due to the nature of the research questions, these tools were appropriate to probe for information required by the study. Thirdly, a combination of data collection tools was chosen to triangulate data. The triangulation of the data gathered over the three time points was crucial to improving the validity of the findings.

**Table 8. Data Collection Tools Used at Specific Study Phases and Areas of Interest Investigated Using the Tools**

| Data collection tool | Phase | Number used in each phase | Total no. conducted | Areas of interest investigated |
|---|---|---|---|---|
| Focus group interviews | 1<br>2<br>3 | 3<br>1<br>0 | 4 | Situational assessment of existing HIV and STI prevention interventions, understanding of program evaluation, M&E mechanisms in place, and local theories in behaviour change. |
| Key informant interviews | 1<br>2<br>3 | 8<br>6<br>4 | 18[17] | Attitudes towards program evaluation, challenges faced in conducting evaluations, achievements of interventions, understanding of terms such as evidence-based, monitoring, evaluation, reviews, background information on interventions, future plans of programs, changes in the interventions, and interventions with people living with HIV in the province. |
| In-depth interviews | 1<br>2 | 4<br>5 | 13 | Local theories of behaviour change, understandings of behaviour change, |

[17] One person interviewed twice at different study phases.

| Data collection tool | Phase | Number used in each phase | Total no. conducted | Areas of interest investigated |
|---|---|---|---|---|
| | 3 | 4 | | linkages between national strategies and the implementation of prevention activities at the community level |
| Participatory observations | 1<br>2<br>3 | 6<br>8<br>1 | 15 | Activities within different organisations, working relationships between organisations, working challenges faced in the province. |
| Non-participant observations | 1<br>2<br>3 | 9<br>8<br>6 | 23 | STI clinic settings, posters, HIV prevention messages, locations of health facilities, interactions between staff during and after work. |
| Scenario (World AIDS day) | 2<br>3 | 7 | 7 | How sexual behaviour among the public is expected to change during pre-election campaigns |
| Field work journal | | | | Ethnic tensions in Popondetta, and national elections in PNG (2012). Management and logistics of study, interview schedules, written notes taken during casual conversations with non-study participants, e.g., families of HIV intervention project staff. |
| Scenario (National elections) | 2<br>3 | 5 | 5 | To draw out indigenous behaviour change theories. |

Apart from interview probes, two scenarios were used to draw out any possible indigenous behaviour change theories and models. During the second phase (April-July 2011), the national elections were conducted in the country. There were public awareness campaigns conducted on HIV prevention during this national event in communities of Sohe District, as this district had higher reported levels of HIV infection compared to the other district of Ijivitari (Figure 5). The methods used in the public awareness campaigns included public talks presented to the general population who attended on the spread and prevention of HIV followed by male and condom demonstrations, theatre and question and answer session.

A scenario was used depicting a common practice during the national election campaigns in PNG. The scenario was about a single man named Singa, aged 24, who travelled through communities to campaign for his older brother named Embo, a candidate contesting for the Sohe seat. Singa had money to spend on alcohol and women. In the last week, he had three unprotect sex encounters with three different women. He is known in other communities for his sexual promiscuity. The scenario ends. The question was asked;

“It is common knowledge that such practices occur during the election periods every five years, when the country elects its provincial and national leaders. If your organisation was conducting HIV prevention education specifically for the national elections, what would be your message, and how do you intend to change the unsafe sexual behaviours such as Singa’s behaviour?”

Triangulation is used to compare the information gathered from all different data collection tools to observe any consistencies and contrasts.(164) Data collection has to end at a certain stage and therefore data saturation is the point at which data collection can cease. The data collection process reaches closure when the information that is being shared with the researcher becomes repetitive and contains no new ideas, so the researcher can be reasonably confident that the inclusion of additional participants is unlikely to provide additional information.(165) Furthermore, the point of saturation of data reduces bias, because all answers to a specific research question may have been exhausted through the saturation. Another advantage of using a combination of tools was that it helped to reach saturation point in a shorter time-frame. In this study, saturation was reached by the third phase of the study.

### 3.4.2 Process

In the field, the data collection began with non-participant observations of the normal working day in all the organisations that participated in the study. In non-participant observations, the researcher, as an observer, does not participate or intervene in any activity.(167) I originate from the Northern Province; therefore, non-participant observations with an outsider’s perspective were used earlier in the data collection process to ‘re-program’ my mindset. I had to observe events of the study as an outside researcher, rather than as a local member of the community. An outsider’s perspective maintains distance and observes activities with an outsider view of what takes place.(167) In the initial days of fieldwork, non-participant observations were carried out and notes were recorded, in order to prepare a schedule for the data collection process. The tool was also used to interact with potential informants and maintain an outsider perspective on the socio-economic and cultural dynamics in the study location.(168)

The outsider perspective was crucial in minimising bias in reporting a one sided insider view on the overall situation. I took a neutral and empathetic stand in listening, questioning, and interpreting what was observed, before interacting with the study participants. In order to maintain objectivity, Patton (207, p.48) argues that the outsider perspective can limit one's understanding of what one is observing and studying, especially where meanings and emotions are part of the daily interactions of people. Instead, Patton suggests taking a neutral stance of empathy (207, p.50) as absolute objectivity is impossible to achieve in practice. Relevant data gathered from the passive observations were used as probes for the subsequent face-to-face interviews. While a non-participant observation allows me to observe people's behaviour and community events in terms of how they would normally occur, many of these events and behaviours may not be relevant to the research issue under investigation, as experienced in this study. As a result, face-to-face interviews were utilised in all three phases of this study to complement the limitations of the non-participant observations.

Focus group discussions (FGD) were used to undertake a situational assessment of the HIV prevention activities in the province. FGD is a qualitative method of gathering data, with the primary aim of describing and understanding perceptions, interpretations and beliefs of a selected population, to gain an understanding of a particular issue. It involves a group of 6 to 12 people who share similar social or cultural backgrounds or share similar experiences or concerns.(160) In this study, persons who participated in the FGD shared similar work experiences and concerns in preventing the spread of STI, including HIV. FGD were used to draw out the general opinions of participants. Data from the FGD provided an insight into issues that the group participants agreed or disagreed on. Background information on the HIV and STI prevention work was also collated from FGD. Furthermore, the FGD provided an opportunity to identify and select the study participants for key informant interviews (KII). In FGD, when the participants are stimulated to discuss an issue, the group dynamics can generate new thinking about a topic which will result in a much more in-depth discussion, but a disadvantage of a focus group is the possibility that the members may not express their honest and personal opinions about the topic at hand. They may be hesitant to express their thoughts, especially when their thoughts oppose the views of another participant. To offset the possibility of FGD participants not voicing their true opinions, key informant interviews and in-depth interviews were used to complement FGDs. During phase 1 of my study, I conducted one all-male FGD, one all-female FGD,

and one mixed group FGD to find out if there were differences in the understandings of and attitudes towards monitoring and evaluation. Since there were no gender differences in the data, mixed group FGDs were conducted in the latter phases of the study.

Key informant interviews were conducted to draw out detailed information from study participants who had a greater knowledge of a specific topic of interest discussed in the FGDs. In this study, a key informant was someone who knew more about a specific topic of interest; for example, M&E staff were classified as key informants. They provided information on specific questions relating to M&E. Likewise, managers were categorised as key informants because they provided answers on management questions. However, many of the key informants did not have a wide knowledge of other areas; therefore, in-depth interviews were conducted in parallel to the KII.

In-depth interviews provided comprehensive information on specific research themes being investigated. In this study, there were participants who were volunteers who worked in various components of the HIV and STI prevention project in the province. They were not attached to specific project components, but they knew a great deal about the challenges faced in various areas of the HIV interventions. It was significant to acquire their opinions on how the operations of services were implemented. For example, there were volunteers and staff who worked in peer education training, HIV screening, and STI treatment. Their responsibilities overlapped with other sections of the organisation and therefore these individuals were relevant for in-depth interviews. In another situation, there was only one full-time staff in an organisation so this staff member, working alone, was engaged in a variety of jobs to meet the project's objectives. This study participant's interview was counted as an in-depth interview.

Participant observations were conducted simultaneously with the other data collection with an insider perspective. As an insider, I worked in HIV and STI prevention intervention programs in Papua New Guinea for more than 10 years. Consequently, I was familiar with many of the issues relating to the problem of conducting program evaluations for HIV prevention projects. I worked in the capacity of monitoring and evaluation in various government and non-government organisations in PNG. The position of an insider was an advantage, as I was able to understand many of the past and current issues discussed with study participants. The disadvantage of an insider, however, is that I may not have been able to analyse the local events and perspectives objectively. I am familiar with the

socio-cultural backgrounds and practices in the study location, and may potentially have over-looked certain events and local practices that may have been significant to the study. Local knowledge was useful in the study as knowing a lot more about the local context, I was able to probe into certain practices, behaviour and beliefs that an outsider might have missed. Distance was reduced by joining activities such as staff meetings, to interact with study participants to view events through their perspectives.(167)

Participant observation is the process of learning through involvement in the day-to-day routine activities of participants in the research setting.(169) Participant observation enables researchers to learn about the activities of the people under study in a natural setting through observing and participating in those activities. In this study, I participated by sitting in on meetings and asking questions, as well as answering questions when asked; however, questions relating to the study were not asked in observations. Questions directly relating to the study were asked during the one-to-one interviews where probing could take place. The meetings were conducted by the collaborating organisations and not by me. In the first and second phases of the study, participant observations provided the context for the development of sampling guidelines and interview guides (169,170) that were required for further data collection.

Finally, the journal of fieldwork activities was used in this study as a way of keeping a chronological order of events that occurred over the three time points of data collection. Notes from the journal were not used as research data but were relevant for administrative and management purposes of the overall research project. Fieldwork activities included other relevant information such as the challenges faced in arranging the logistics for fieldwork, costs of accommodation and transportation, the meetings attended, informal conversations that led to a consented interview, and events such as my ill health, rain and flooding that disrupted the data collection process.

**Table 9. Definition, Advantages and Disadvantages of Data Collection Tools**

| Data collection tool | Definition of tool | Advantages | Disadvantages |
|---|---|---|---|
| Non-participant observation | In non-participant observation the researcher, as an observer, does not participate or intervene in any activity. (167)<br>In this sense, the researcher's involvement is either known to participants (e.g., if watching a project meeting) or unknown though passively accepted (e.g., a member of the audience at a political rally). | It is a simple and cheap method to use.(167)<br>If people are unaware they are being observed, they will act as they normally do.<br>It can be used to analyse social interactions in a wide variety of contexts.(167) | It relies heavily on the researcher's interpretation of what is going on.(167)<br>The researcher selects the actions they deem significant.<br>The researcher may interpret things from their own ethnic/gender/class standpoint, which can affect the validity of the research.<br>If people know they are being observed, they will act differently than usual.(167) |
| Focus group discussion (FGD) | FGD is a qualitative method with the primary aim of describing and understanding perceptions, interpretations, and beliefs of a selected population, to gain an understanding of a particular issue. It involves a group of six to 12 people who share similar social or cultural backgrounds or share similar experiences or concerns.160(p.71) | The ability of group participants to interact with each other.<br>When the participants are stimulated to discuss an issue, the group dynamics can generate new thinking about a topic which will result in a much more in-depth discussion.(165) | Compared to individual interviews, focus groups are not as efficient in getting to the maximum depth on a particular issue<br>A particular disadvantage of a focus group is the possibility that the members may not express their honest and personal opinions about the topic discussed. They may be hesitant to express their thoughts, especially when their thoughts oppose the views of another participants.(165)<br>Other limitations of focus group discussions are that they require good facilitation skills and some members can dominate the discussion. |
| Key informant interviews. | Key informant interviews are qualitative interviews | • Provide the opportunity to | Relationship with informant may influence the |

| Data collection tool | Definition of tool | Advantages | Disadvantages |
|---|---|---|---|
| (Interviews conducted face-to- face) | with people who know what is going on in the community.(162)<br>The purpose of key informant interviews is to collect information from a wide range of people who have first-hand knowledge about the community or a specific topic of interest. These experts, with their particular knowledge and understanding, can provide insights on the nature of problems and give recommendations for solution.(162) | establish rapport and trust and get an insider's view<br>• Get expert-level perspectives<br>• Gather in-depth information about the topic of interest<br>• Allows clarity of ideas and information.<br>• Can be easily combined with other techniques<br>• Can obtain information from many individuals, including minority or silent majority viewpoints.(162) | information obtained.(162)<br>Informants may give their own impressions and biases.<br>Information may be difficult to quantify or organise.<br>There is a potential to overlook community members who are less visible.<br>It can be time consuming to select appropriate informants and build trust.(162) |
| In-depth interviews[18]. (Interviews conducted face-to- face) | In this study, an in-depth interview went beyond the specific questions on specific topics. Study participants who were selected to take part in in-depth interviews were asked a range of questions. There was more flexibility of questions asked in in-depth interviews compared to interviews conducted with key informants. | Detailed and rich data can be gathered in a relatively easy and inexpensive way.<br>It allows the interviewer to establish rapport with the respondent and clarify questions.<br>In-depth interviews provide an opportunity to build or strengthen relationships with important community informants and stakeholders.<br>The researchers can contact informants to clarify issues as needed.(162) | This tool may be challenging to reach and schedule interviews with busy and hard-to-reach respondents, and it can be difficult to generalise results to the larger population unless many key informants are interviewed. |
| Participant | Participant observation | It allows for richly | Sometimes the |

[18] In-depth interview presented in Table 9 is not a definition but how it was used in this study.

| Data collection tool | Definition of tool | Advantages | Disadvantages |
|---|---|---|---|
| observation | is the process of learning through involvement in the day-to-day routine activities of participants in the research setting.(169) | detailed description.(169)<br>It provides opportunities for participating in unscheduled events.<br>It facilitates the development of new research questions.(169) | researcher may not be interested in what happens out of the public eye and one must rely on the use of key informants.(169)<br><br>Different researchers may gain different understandings of what they observe.<br><br>There can be problems related to representation of events and the subsequent interpretations.(169) |
| Journal of fieldwork activities[19] | In this study, notes were taken on major events that occurred during the three phases of the study; the events that were not directly related to the study but had indirect impact on the study. | Diary of events is a good source of capturing information that can explain a sudden change in fieldwork activity; for example, illness, natural disasters, or theft.<br>Unexpected activities that may have occurred to disrupt fieldwork and data collection. | Information captured in a journal of fieldwork is often irrelevant to the research topic. |

There were 15 participant observations conducted at the first and second phases of the study (Table 6). During the second phase, two NGOs were participating in a review of their interventions. Financial donors of both these organisations had requested a change in target groups and specific activities, because reviews of the interventions showed no behaviour changes among the project clients. The management of these organisations conducted several meetings with staff to inform them of the new decisions from their respective national headquarters. I attended five of these meetings as a participant observer. Information drawn from participant observations from the meetings included: the target groups to be included in the interventions, what specific intervention activities would be

[19] Journal of fieldwork activities in Table 9 is not a definition but how it was used in this study.

changed, staff comments on the changes, workloads among staff, resources and timeframe allocations, and reasons for the change in intervention strategies.

There were four non-participant observations made at three VCT sites in the province. One of the VCT sites was visited twice. Non-participant observations were made on the location of the VCT facility. In addition, I lived in the study location among study participants and among the intervention activities for a total period of six months during phases 1, 2 and 3. During these three phases, non-participant observations were carried out. A range of activities were observed such as: staff relationships, the distance people had to travel to work each morning, the types of training that were conducted, the types of information discussed among staff during informal conversations during the lunch break or after working hours, interruptions at work such as electricity disruptions, the level of motivation at work, and the personal challenges that study participants experienced. I also met with all organisations to introduce the research project. During the consultation meetings, non-participant observations were made on how the stakeholders responded to the research, and general views on the HIV and AIDS epidemic in the province and its impact on the local populace.

Almost all the interviews conducted in all phases of the study were voice-recorded. Only one person did not consent to voice-recording. The interview not recorded was a key informant interview. The key informant had expressed strong opinions about the organisation she worked with and was also critical of the way HIV and STI prevention programs were coordinated in the province. This may explain why she refused to be recorded – fear that her voice could be used as evidence against her. The conditions of privacy and confidentiality were repeatedly explained to her, but she insisted on providing an interview without being audio recorded.

Data collection tools were pilot-tested during the first phase of the study. The data collection tool for the FGD was tested in the first group discussion. From this meeting, two individuals from the group were selected to test the data collection tool for the KII. The pilot-tests checked for understanding of the questions asked, the level of language used, especially the English language, and the level of comfort the participants felt towards the questions asked. The pilot testing of the tools included one group discussion, one KII with a male respondent and a KII with a female respondent. As the interviews were conducted with employees of HIV prevention programs, all of the study participants were literate in

the English language. The interviews were conducted in both English and Tok Pisin languages. Several minor modifications were made to the data collection tools, such as the change of words (e.g. from behaviour change theory to behaviour change ideas). Almost all of the study participants were aware of the term 'behaviour change'; therefore, terms such as 'theory' and 'model' were changed to words such as 'idea', 'methods' and 'strategy'. When asked why the word 'theory' was not understood, the study participants involved in the pilot test responded that the word theory sounded too academic and was intimidating.

There was no issue on gender sensitivity, as men felt comfortable speaking to a female interviewer. During the pilot-tests, interviewees were asked if it would be a problem if a female interviewer asked questions of male study participants. The male participants responded that this was not a problem because there were no personal questions included in the interviews. In agreement, the female participants in the pilot tests mentioned that there was no issue whether a male or female asked the questions, because the questions were not considered private or personal. Lengthy questions were shortened after pilot testing. All pilot-tested interviews were completed successfully and amended accordingly. In addition, the pilot test checked for the level of sensitivity to people's position in the organisation, such as junior staff versus senior staff. It was originally thought that junior staff would be hesitant to speak critically about management issues for fear of losing their jobs. However, there were no concerns regarding this matter. All staff were open to a discussion on all issues, and did not express any strong sentiments about the nature of the questions.

## 3.5. Analysis

Thematic analysis was used to analyse all primary data collected in the study. Primary data was analysed using common emerging themes (Table 10). To protect individual identities, real names of study participants were replaced with pseudonyms prior to analysis. Although a total of 54 participants were recruited for the study, 47 transcriptions were done and coded, as some study participants were interviewed more than once using different data collection tools. For example, focus group discussions were transcribed as one interview, so if seven people were interviewed in one FGD, when transcribed the FGD was counted as one transcription, rather than being counted as seven transcriptions. All transcriptions and coding were done by me.

Recorded interviews were listened to three times before transcription. During transcriptions, themes were constructed as they emerged from the contents of the interviews. There was very little need for translation, as most interviews were conducted in English. After the preliminary classification of themes during transcription, printed versions of the coded interview texts were re-read and cross checked to ensure that the texts were classified under appropriate emerging themes. Some coding was reviewed by my academic advisory team, and revisions were made to the data after the review process.

The analysis was based directly on the research questions, using a hierarchical coding structure (Table 10) that allowed specific dimensions of meaning to be examined separately. As the analysis progressed, new codes were added. Coding was carried out three times to identify any inconsistent interpretation of codes or overlapping codes. From the 33 interview transcripts, 11 main themes emerged. The themes were then merged into six themes that were related to the five research questions (Table 10). The two themes in the third column of Table 10 formed the two results chapters of this thesis. Revisions were made to the coding structure and definitions were refined.

Nvivo® is a qualitative data analysis software package produced by QSR International. It was designed for qualitative researchers working with text-based and multimedia information. It supports qualitative and mixed methods research.(171) For analysis, the use of Nvivo® software was attempted; however as I lacked familiarity with this software, it would have taken considerable time to complete the analysis. Therefore, the analysis was conducted manually where, firstly, all the interviews and observation notes were coded and printed out; secondly, the coded hard copy interviews were then cut up using scissors and grouped according to the emerging themes; thirdly, the printed cuttings were rechecked three times to ensure that they were placed in the correct folder for analysis. The cut out interviews were moved two times in the analysis process, from the '*common emerging themes'* folder to the '*themes linked to research questions'* folder; then to the '*main themes for results chapters'* folder (Table 10).

**Table 10. Coding Structure**

| **Common emerging themes from the interviews** | **Themes linked to research questions** | **Main themes that formed the results chapters of this thesis** |
|---|---|---|
| • History of HIV interventions in the province. | • Evaluation capacity in the study location.<br>• Understanding of | • Institutional capacity in program. evaluation |

| Common emerging themes from the interviews | Themes linked to research questions | Main themes that formed the results chapters of this thesis |
|---|---|---|
| • Challenges in implementing HIV Interventions<br>• Partnership among stakeholders. | program evaluation in HIV interventions.<br>• Barriers and facilitators in conducting evaluation.<br>• Local behaviour change theories.<br>• Capacity building in training, resources and individual motivation.<br>• Capacity building in skills, and experiences in evaluation. | • Individual capacity in program evaluation. |

The techniques of peer debriefing and triangulation were utilised to ensure the credibility of the data gathered. The codes and interview transcripts were provided to my academic advisor to review validity. In addition, preliminary analysis was shared with the organisations who participated in the study for feedback, using two separate 20-page reports submitted for comments in March 2012 and September 2012, respectively. In these reports, many interview quotations were presented as results. The reports were reviewed by several people from different organisations, including the Research Coordination Unit of the National AIDS Council, before analysis was finalised. The reviewers of the primary data included: three academics in public health, two managers from two HIV prevention organisations, an M&E officer, a clinical staff member from a health centre, an administrator of the PAC, and indigenous PNG researchers from the National AIDS Council Secretariat. Data collected from the third phase was also reviewed for consistency and fair interpretation by the same review panel before the two results chapters were finalised. Altogether, 11 people from seven different organisations reviewed the data and confirmed that a fair representation was made in the findings of the study, and that the data reasonably reflected the situation in HIV prevention projects and M&E issues experienced in the Northern Province and PNG. Furthermore, triangulation of findings was conducted by making follow up participatory and non-participant observations after interviews were conducted. When observations contradicted interviews, further interviews were conducted to verify the data.

The experience of conducting a field-based research does not always work out as planned. The next section discusses challenges encountered in implementing the study.

## 3.6. Methodological Issues

A major challenge faced during the study was the delay in ethical clearance from PNG. The first ethical application was submitted in February 2011, but the application was not approved by the National AIDS Research Advisory Committee (RAC). After being peer reviewed, the research proposal was considered to have a strong research design. However, it was not approved for administrative reasons. The RAC strongly emphasised that the study should include an element of research capacity building of local researchers in the Northern Province. Prior to the research submission to RAC, I contacted the HIV prevention stakeholders in the province and notified them that a research proposal was to be submitted and that I would train anyone they knew who would be interested in learning qualitative research skills. I waited three months for a response but there was none; so the research proposal was submitted to RAC. The RAC refused ethical clearance on the grounds that I did not have any affiliation with any of the research institutions or universities in PNG. It was argued that the research proposal did not promote collaboration among research institutions and researchers in the country.

The same research proposal was resubmitted and justifications were made that I had to conduct the study as an individual researcher because, although the idea was suggested to build local capacity in research skills and knowledge to the stakeholders in the province, there was no response and, as a result, capacity building of research skills was not included in the research proposal. The revised research proposal to RAC also justified that it was unethical to force people into doing what they would not want to do. For instance, I had sent an invitation for any interested persons working in HIV prevention to be trained in qualitative research methods, but no one took up the offer. Therefore, there was nothing further I could do about capacity building in research methods at the study location. On the issue of collaboration, it was clear in the RAC research guidelines that as long as researchers worked in collaboration with local stakeholders and the provincial AIDS Council which had endorsed the study, the research still followed the guidelines set by the RAC. The revised research proposal was accepted and ethical clearance was granted for the first trip in June 2011, four months later than was originally planned.

The second ethical clearance application was submitted in September 2011 for the second and third phases of data collection in PNG. The second ethical application was for the same study, but two different ethical applications had to be submitted because the first ethical application was for the purpose of the situational assessment conducted in the first phase of the study. It was unclear what research design would be used in phases two and three until the analysis of the first phase data was completed. After phase one was conducted, it became clearer which design would be used for the second and third phases of the study. However, as I was a national from PNG, the writing of research proposals to submit to the PNG HIV and AIDS Research Ethics Committee provided the opportunity for personal capacity building in conducting and managing a research project in the country. The process provided the opportunity to learn how the process works, particularly in relation to the familiarisation of the research proposal guidelines, how to access additional funding, and which responsible office to contact for further assistance. Furthermore, the exercise obliged me to search for updated literature from PNG to justify the reasons for conducting the study in the Northern Province. This also led to the development of a strong literature database on PNG for future research use.

Time constraints were experienced due to further ethical clearance issues. After waiting for over two months for a response to the second ethics application, I travelled to PNG in November 2011 in the hope that while in the country the ethical clearance would be granted and data collection would be able to commence. Again ethical approval was not granted, as the RAC requested a report of the first phase of the study before ethical clearance could be given for the second and third fieldwork phases. So I had to travel back to Brisbane without collecting any primary data, to write a report and submit it to the RAC and wait for ethical clearance before I could undertake my fieldwork. The second ethical clearance was granted in late April 2012.

Due to the above processes, the commencement of the third phase of the study was delayed to December 2012. Initially it was planned to complete all data collection by September 2012. However, this plan was delayed by four months. The first phase was the longest phase extended, providing sufficient time to gather information to address the three research objectives (Table 4). Although I had proposed three months of data collection for the second phase, the national political elections in PNG were carried out around the same time (April–July 2012); therefore, I was given only two months for fieldwork, as data

collection could not be conducted during the national election weeks; that are during the campaign and voting periods. A disadvantage of that decision was that a significant amount of potential primary data was lost due to the time constraint. Interview guides were prepared and were to be used to ask study participants about HIV prevention activities specifically during the election period, when there was an increase in the movement of people and an increase in social activities, including alcohol and marijuana consumption. The study wanted to investigate how one-off events such as the national election impacted the intervention activities for HIV in the province. Data collection during this period was limited, as study participants were given time off to travel to their respective villages and communities to cast their votes, and they were therefore unavailable for interviews.

Data collection to address the fourth research question was planned for the second phase, but, due to the time constraints, the fourth and fifth research questions were further investigated in phase three (Table 4). There were minor methodological changes made to accommodate the loss of time caused by the delay in ethical clearance; however, overall the research design was successfully executed as planned.

Another limitation faced in the study was that a bias may have been introduced into the study as a result of me being an insider in the study location and having worked alone. My objective views and analysis may have been distorted, as there were no outsiders to provide constructive feedback on what was being observed on the ground at a specific time and location. I had previously worked under similar circumstances in the Northern Province; therefore, events and people's behaviour and practices may have been taken for granted, which an outsider might have viewed and documented from a totally different perspective. However, the issue of biased observations as an insider may have been minimised through the feedback received from academic advisors and others who reviewed the primary data.

There were four academics on my panel of advisors: they are all non-PNG citizens and two[20] have conducted extensive health research in Papua New Guinea. The other advisor[21] is a public health program evaluation specialist who has never worked in PNG but has conducted extensive evaluations in other parts of the world and Australia. The advisors,

[20] Professor Maxine Whittaker (principal advisor) and Associate Professor Andrew Vallely (associate advisor).

[21] Dr Maria Donald (associate advisor).

especially Professor Whittaker and Dr Donald, who are teaching staff at the University of Queensland, have consistently provided guidance and feedback during my PhD candidature. The academic advisors reviewed the findings of the study and provided comments with an outsider's view. For example, in the process of writing this thesis, I had unintentionally left out details on the challenges of organising logistics, ethical issues and other issues, that hindered data collection at times. I perceived these issues as 'normal' and did not document them. However, the advisors as outsiders identified these issues as significant methodological limitations and advised me to include them in the thesis.

During data collection, there were unforeseen setbacks – events that were beyond my control. The disruption of electricity supply often caused interruptions to data entry and, as a result, plans to enter data and conduct preliminary analysis while in the field did not take place in phases one and two of the study. In the first phase of the study, I had malaria and food poisoning simultaneously and could not do any work for almost three weeks. During the second phase, I developed a severe abscess which made it uncomfortable to move around. Apart from illnesses, there were the natural elements that made it difficult to work at times. The Northern Province regularly experiences continuous heavy rain and flooding. Many of the bridges and roads had been damaged in 2007 when the province experienced a major cyclone (Guba), and many of the bridges were washed away. These bridges have not yet been repaired and whenever there was flooding rain during the period of data collection, access to certain locations was cut off and data could not be collected. Since I was working as a lone female, security was a concern and therefore, on many occasions, male company had to be arranged in advance to travel with me; sometimes this resulted in loss of time.

There were travel and communication issues faced during the three field trips to the study location. As mentioned, rain and flooding occurs frequently in most of the Northern Province. As such, travel to locations outside of Popondetta town was often difficult. Four wheel drive vehicles are needed to cross shallow flowing rivers. The only way to get access to four wheel drive vehicles is through local hire car companies; often this was not possible due to the high demand for the limited supply of such vehicles and their high daily rental cost. Often I had to rely on my local knowledge to seek transportation. Study participants were resourceful in providing such information as they also used hire vehicles to travel around the province to carry out their work. Public transport was irregular,

as its availability depended on the condition of the roads. In addition, it was unsafe to travel by public transport on road trips longer than one hour, for due to the bad conditions the roads, criminals often blocked roads, held up passengers and drivers with home-made guns and other weapons, and stole belongings from travellers. Many of these road blocks occurred at random and it was often too risky to use public transportation, as I was female and travelling alone with research data and equipment.

The main communication problem was the limited access and expensive cost of the internet. While in the field in PNG, it was very difficult to use cheaper internet alternatives such as Skype, to communicate with academic advisors in Brisbane. Email was the main mode of communication. Answers to questions and advice on field issues were often delayed due to power blackouts, no network coverage, or very slow internet connections. There were no issues with phone communications within the country. However, international phone calls from Papua New Guinea are costly ($2–3 a minute).

During the first phase of the study, two of the nine organisations (a private company and an NGO) in the Northern Province did not consent to participate in the study. Both organisations requested to view relevant approval documents for the research before they could participate. The approval letter from the Provincial AIDS Committee, the ethics approval documents from the PNG HIV Research Advisory Committee and from the University of Queensland, were shown to senior staff. The private company apologised and indicated that they were not able to participate in the first phase of this study because their HIV project staff were collaborating with another NGO undertaking a survey to evaluate their HIV interventions at the same time (June–July 2011). However, the HIV awareness staff of the company, including their clinical staff, participated in the second and third phases of the study. The manager of the NGO remained unwilling to participate in the study, even though additional copies of the research information form, and study participant consent forms, were emailed to her as requested. The NGO manager requested to see the research proposal which was also made available to her, but no response was received. I returned to Brisbane and requested a reference letter from the primary advisor. Professor Maxine Whittaker wrote a reference letter[22] explaining the objectives of the research and that the study was conducted as part of a requirement for a doctorate degree at the University of Queensland. The reference letter was emailed to the NGO office in PNG and

[22] Appendix 3.

a copy was provided to the provincial office of the NGO. The NGO project coordinator in the province then consented to participate in the second and third phases of the study. The challenge faced with the non-consenting NGO was that, although the provincial staff were willing to participate in the study, they had to receive approval from their head office, which was located in another part of the country. After several meetings with the local project coordinator and several follow-up phone calls and emails to the NGO's manager, the local staff in the province from this NGO participated in the study and were very helpful. The outcome of the communications with all the HIV intervention programs in the Northern Province strengthened the future working relationship with them. They responded by requesting the findings of this study to inform their programmers. The final report of this study was distributed to all organisations in the province in September 2012.

The study design had to be adjusted to accommodate further interview probes into indigenous health behaviour change theories, as this area of research was useful for future work in HIV and health promotion. The initial plan was to conduct an intervention in between a pre and post data collection exercise. However, this was not possible due to time limitation, especially the conduct of an intervention between the pre and post interviews. This decision was made after the phase one, following consultation with the study participants and with the Provincial AIDS Council. There were time clashes in executing an intervention for this study. Therefore, a three time-point observation study was carried out instead. All other methodological aspects, including the data collection tools, study location, study participants, data management and field logistics, remained unchanged. Despite the various methodological setbacks experienced during the course of the study, the fieldwork in the Northern Province went ahead, and data collection for all three phases of the study was carried out as planned.

## 3.7. Study Design Issues

Several limitations of this study need to be acknowledged. Due to time and budget constraints, primary data was not collected from the national-level organisations, to examine differences in the findings between the decision making agencies and the implementing organisations at community level. But, there was enough grey literature (7,77,151) from Papua New Guinea that had reported similar results to those found in my study.

Findings from this study should be viewed with caution because the data was collected by self-reporting by program staff in one province of PNG. Therefore, findings rely on individual perceptions and memories, and do not allow for generalisation to other community-based HIV prevention programs in other parts of the country. Nevertheless, the recall remained the same throughout the 15 months of study, which means bias may have been minimised. In addition, there are political, cultural and socio-economic differences between the Northern Province and the other provinces of the country. Therefore the findings cannot be generalised to other health promotion programs in PNG. However, the depth of understanding through methods used and the longitudinal nature of the data collection provided a richness of data that can be used to build capacity in program evaluation for CBOs.

The under representation of views from smaller organisations could have introduced bias; however, to minimise potential bias, different data collection methods were used in all three phases to gather data from organisations that had low staff numbers. Several interviews were conducted with staff from smaller organisations to triangulate data and reach saturation. For instance, the same individual from a smaller organisation was selected to participate in several interviews (FGDs, in-depth, and case scenario) and participated in all three phases. This process was explained to both informants from larger and smaller organisations, so they understood why others were interviewed more than once. With triangulated and saturated information, my study was able to draw out the issues that limit the use of theory-based evaluation.

The difference found between a longer term qualitative study and an in-depth study, is the ability to make comparisons at different time points. The three-phased study design used was able to observe any trends in attitudes towards evaluation, and increase the reliability of the findings. A one-off in-depth study could have missed the changes in attitude from a negative to a positive attitude change. The long term study also observed the changes in the understanding of evaluation at two different times when the intervention strategies had changed. In the first phase, informants reported that they did not understand how it was possible to observe behaviour changes among the general population. During the second phase, the HIV prevention strategy had changed from a population-based to a targeted intervention. In phase 3, analysis from face-to-face-interviews, FGDs and observations showed that informants were able to understand how evaluating a targeted

intervention could show changes in sexual behaviour among a smaller targeted group when compared with a wider population intervention. In addition, this study design was able to observe a general increase in knowledge of evaluation. Thus it enabled me to identify factors that could facilitate modifications in attitudes and practices, by following a group over time and through change.

Finally, this thesis focussed on traditional health behaviour change models used in public health research. More recent social and cultural behaviour change models have been developed, but were beyond the scope of this study. These could be explored in future research.

## Conclusion

My research project followed a three-phased qualitative study design which used purposive sampling to recruit study participants. There were some challenges due to time delays relating to the ethical review administrative processes, personal health issues, and field based challenges, such as the unavailability of transport, security, weather conditions, together with a national election which caused the cancellation of a few interviews in phase 2. However, good data was collected and support from institutions in the province was gained and maintained.

The next two chapters (Chapters 4 and 5) of this thesis present the findings of the study.

# RESULTS

## Chapter 4. INSTITUTIONAL CAPACITY IN PROGRAM EVALUATION

The literature reviewed (Chapter 2) showed that many HIV prevention implementers are community-based organisations who find it difficult to conceptualise and design evaluations of their preventive programs, because they do not have the appropriate skills required for the task.(9, 10, 94) The main barrier to implementers is the lack of capacity in program evaluation. The evaluation process is seen as unclear, complex, scientific, and beyond the capacity of the CBO staff to conduct. According to the literature, CBOs need assistance to develop and use the evaluation tools to generate useful data. Furthermore, collecting and analysing data is a challenge faced by CBOs, especially the analysis of data. Staff turnover, time constraints, lack of M&E leadership, and insufficient knowledge of M&E are other factors that impede the capacity to evaluate HIV prevention interventions.(9, 10, 151, 209) Similar challenges to building indigenous evaluation capacity, as well as other contributing factors, were found in phase one of this study. There is a need to develop an evaluation culture and provide support for leaders in organisations to effectively conduct ECB. The use of unsuitable evaluation approaches, and donor requirements for logframes are some factors that hinder evaluation for HIV prevention programs.(209); logframes that are not considered very useful in the evaluation of complex development programs.

This chapter presents the situational assessment of the HIV and AIDS intervention in the Northern Province between 2008 and 2012. A situational assessment was required for this study as there was insufficient information to provide the background data for the study[23]. Findings from this phase of the study are presented together with the findings from the other two phases and not as a separate chapter because the findings of the situational assessment were used as one integrated analysis. The findings from the three phases of the study were analysed together to support the five research questions.

[23] See section 3.2, Study design.

The themes[24] discussed in this chapter include: (a) the history of HIV interventions in the Northern Province; (b) the HIV prevention interventions in Northern, (c) challenges in implementing HIV interventions, and (d) partnership among stakeholders.

The findings presented in this chapter describe the situation of HIV intervention programs in the study location at the time this study was conducted (January 2011 to January 2013). As such, the chapter is a descriptive chapter. However, the chapter is not all descriptive as it analyses the challenges that have been faced in executing STI, HIV and AIDS interventions, and how these challenges have affected the process of evaluating programs between 2008 and 2012.

## 4.1. The History of HIV Interventions in the Northern Province

Organisation 1[25] is the predominant Christian denomination in the province. Through its Youth Ministry it pioneered the work of HIV prevention in the Northern Province. HIV education began in 1988 by a small group of organisation 1 sisters, a priest and the Youth Ministry. It began as a youth program, educating young people about the new disease called AIDS. The first case of PNG HIV infection was detected in 1987, which prompted organisation 1's Youth Ministry to introduce the topic of AIDS as part of its outreach program to young people in the province. As reported by one of the pioneer volunteers in an in-depth interview, organisation 1 took a particular interest in the disease because of the nature of its transmission, through sexual contact. The organisation advocates for sexual relationships within the confines of stable marital unions; therefore HIV and AIDS was a threat to family values that the organisation was teaching to its members.

> *All of those people and I were with the (named) youth ministry at that time, so we would gather around and, you know, talk about HIV and AIDS as our ministry work and it got bigger and bigger and bigger, and became such a concern to the church that the church wanted us to start talking to the people about HIV and AIDS so wherever we went carrying out our ministry work, we also included HIV and AIDS prevention as part of our message and eventually we were able to reach most of the organisation 1's members around the province. The youth ministry took*

[24] Themes that emerged from the analysis (as shown in Table 10)

[25] Names of all organisations that participated in the study have been changed to Organisation 1 to Organisation 12.

> *up the AIDS campaign because the sickness was spread through sex and organisation 1 was concerned about extra-marital affairs that were causing a breakdown in family units.* (Brian[26], male, in-depth interview)

According to *Brian*, organisations like organisation 1 were the first to respond with health promotion at primary level to try and prevent the diseases entering the communities, but the churches' mission was to spread the gospel of Jesus Christ, as PNG is a predominantly Christian country.

> *Organisation 1 was the first in the province to respond to the HIV epidemic, but the organisation's main aim is to spread the gospel of Jesus. So even if they did provide HIV and AIDS awareness, it was mainly out of spiritual care for people and not for health reasons* (Brian, male, in-depth interview).

In another in-depth interview with Caleb who had also worked with organisation 1, the youth ministry team was faced with medical questions while running the AIDS awareness among young people. They were unable to answer the questions, so the team sought medical advice from two doctors at the Popondetta General Hospital. The doctors shared similar concerns of the risks that HIV posed to young people. Through the doctors' professional network, other health officials from the province became involved with organisation 1's youth ministry, to carry out HIV and AIDS education programs in the province. Medical information on HIV and AIDS was shared among the youth ministry team who advocated for the prevention of HIV.

> *I was a teenager at that time when we conducted public awareness on HIV in villages. We didn't know the medical side of the disease well, you know, things about the virus, how it grew in the body and so on, so we needed help from the doctors in the hospital to join us in the campaign. Their involvement was important because they took medical questions we could not answer* (Caleb, male, in-depth interview).

There was no funding budgeted for the HIV prevention outreach activities conducted by the Youth Ministry. Money was raised through fundraising activities. The money gathered from fundraising drives mainly funded the World AIDS Day celebrations on the first of December each year. The HIV education awareness conducted by the

[26] Brian is a pseudonym.

Organisation 1's Youth Ministry could not be sustained due to the lack of funding. However, as a result of the early HIV prevention campaigns by the Youth Ministry, a network of volunteers in the community, organisation 1 and the medical profession, was established to advocate for the prevention of HIV in the province in the late 1980s. Although the organisation provided information on HIV to the general population, it had to form a group of committed volunteers to carry out the public awareness work in the communities. There was no long-term plan designed and implemented; thus, awareness activities were carried out on an ad hoc basis by volunteers. In addition, the awareness activities were not able to be sustained, and subsequently the impact of the early HIV and AIDS interventions carried out by organisation 1 was difficult to review.

According to Brian, in 2003, a Provincial HIV and AIDS Response Coordinator was appointed to coordinate the HIV prevention interventions in the province. Human resources needed to manage organisation 6's office were drawn from the network of people who had been conducting the HIV awareness programs. It took a while to establish organisation 6, thus programs were not implemented until 2005. In the same year, organisation 7 was the first NGO to establish its program specifically committed to HIV prevention in the Northern Province. The other organisations moved into the province after 2005 and have since been providing HIV and STI prevention and treatment services to the people of Northern Province. Although organisation 4 and organisation 2 provided other health care and treatment services in the province prior to 2005, the HIV and STI prevention components did not commence until after 2005 (i.e. 17 years after the first educational intervention conducted by organisation 1).

## 4.2. The HIV Prevention Interventions in Northern Province (2008-2012)

There were nine organisations actively carrying out interventions for HIV and STI prevention in the Northern Province during the first phase of this study when the organisations were recruited to participate in the study (in June 2011). By January 2013 when the study reached its third phase, three organisations were no longer in operation. These three organisations were: organisation 10, organisation 9 and organisation 5 (Table 11)[27] Apart from the nine organisations that participated in the study, there were two

[27] The shaded rows in Table 11 are organisations that have ceased operations in the study location.

organisations that were ending their work in the province about the time the first data was being collected (these two organisations were therefore not recruited into the study). Organisation 11 began in 2007 and ended in July 2011.(172) organisation 11 was involved in building and renovating government, private, and church-run health facilities in the province. The This organisation improved health facilities for people in the local communities to provide increased access to STI and HIV screening and for those living with HIV, to have better access to HIV treatment as well as the treatment for opportunistic infections. Secondly, collaborative research on the acceptability of male circumcision as a HIV prevention method was conducted between 2010 and 2012.(173) Although the research organisations were not based in the province, the research indirectly provided the awareness of male circumcision as a method of reducing the spread of sexually transmitted infections, including HIV transmission. As this study observed the HIV interventions in the province in the five year period 2008 to 2012, organisation 11 and organisation 12 are included in this chapter.

**Table 11. Organisations That Participated in the Study**

| Number | Organisation number | Type of service provided | Start of work on HIV and STI prevention in Northern Province | End of work on STI and HIV prevention |
|---|---|---|---|---|
| Not counted[28] | 1 | Public Awareness | 1988 | 1990 |
| 1 | 2 | Clinical | Before 2005 | Current |
| 2 | 3 | Clinical | 2008 | Current |
| 3 | 4 | Clinical | 2007 | Current |
| 4 | 5 | Clinical | 2007 | 2012 |
| 5 | 6 | Coordinating Agency/ Education | 2005 | Current |
| 6 | 7 | Education, HIV screening and home base care for PLWH | 2005 | Funding ceased in June 2013 |
| 7 | 8 | Education | 2005 | Current |
| 8 | 9 | Education | 2007 | 2011 |
| 9 | 10 | Education | 2007 | 2011 |
| 10 (not recruited in study) | 11 | Clinical | 2007 | 2011 |
| 11 (not recruited in study) | 12 | Research | 2010 | 2012 |

[28] Not counted because the Anglican Church intervention ended before 2008. This study reports the HIV prevention work in the Northern Province between 2008 and 2012.

The history of HIV prevention was brief in the Northern Province. Between 2006 and 2011, there were 11[29] organisations altogether fully participating in HIV prevention through the provision of clinical and educational programs. By June 2013, half of these organisations had ceased their operations as there was no further funding to keep them in operation due to the province been considered as a low HIV prevalence province.

## 4.3. Challenges in Implementing HIV Interventions

This study identified three main factors that contributed towards the inconsistent implementation of HIV prevention interventions in the Northern Province.

First, there was an unequal distribution of program implementers by sector. There were more NGOs conducting full-time interventions on HIV and STI prevention compared to other sectors. Most of the educational interventions were carried out by the NGOs, while the other sectors were engaged in the treatment of STIs. Among the organisations there were two government agencies, one church affiliated organisation, five NGOs, and one intervention funded by a development partner (Table 12). Although organisation 7 was considered an FBO, it was not managed directly by a church affiliation. It was managed by the NGO's Head Office in another province. Therefore, organisation 7 was categorised as an NGO. Organisation 6 played a coordinating role for all HIV interventions in the province. However, despite the unequal distribution of implementers by sectors, all organisations contributed significant services and shared responsibilities equally. For example, the burden of HIV screening, treatment and care was shared among the different sectors. The NGO groups, such as organisation 7 and organisation 8, conducted the awareness for HIV screening. The HIV tests were carried out at the organisation 7 (NGO), organisation 4 (church) and organisation 2 (government). The reactive HIV tests were sent to the organisation 2 (government) for test confirmations, while organisation 3 (private) provided anti-retroviral treatment (ART) to people living with HIV.

**Table 12. Participant Stakeholder Organisations Classified under Sectors**

| Government agencies | Church organisation | Private sector /NGOs | Development partners |
|---|---|---|---|
| Organisation 6 | Organisation 4 | Organisation 8 | Organisation 5 |
| Organisation 2 | | Organisation 10 | organisation 10 partly funded by a development |

[29] Including the ADB Enclaves Project and the circumcision study.

| Government agencies | Church organisation | Private sector /NGOs | Development partners |
|---|---|---|---|
| | | | partner |
| | | Organisation 9 | Organisation 9 was funded by two development partners |
| | | Organisation 7 | Organisation 7 was funded by a development partner |
| | | Organisation 3 | Funded by organisation 11 between 2007 and 2011 |

Second, there was an inconsistent flow of interventions throughout the study location. Some of the organisations were based outside of the province and only visited the province for brief periods. Out of the four NGOs that conducted HIV and STI educational programs in the province, two organisations were based in the province. The other two organisations were based in another location in PNG. The outside-based organisations visited the province once or twice a year to conduct training and workshops with their target groups and volunteer staff. The ad hoc nature of visits to the province did not guarantee a consistent flow of work from the project volunteers based in the province. Furthermore, projects based in the province did not perform consistently. For example, organisation 8 had two separate educational interventions. The first HIV prevention activities[30] were carried out for about three years, then ended in 2008. After two years of absence, the second part of the project[31] was initiated. The second intervention was an overhaul of the first intervention of organisation 8's intervention. Since the second intervention was not a continuation from the first intervention, a lot of time was spent re-designing the project, employing new staff, and seeking funding. In addition, projects like organisation 5 and organisation 4 have since ceased without any plans for further operations.

Thirdly, the interventions were generally concentrated in small areas of the province. Most rural areas of the province were not reached. HIV prevention interventions were concentrated near the town where there were better road links. The interventions were frequently conducted between the coastal port of the province and an inland station, along the province's only highway linkage. All stakeholder offices were also situated near town. Organisation 7 was the only organisation that covered many areas in the province.

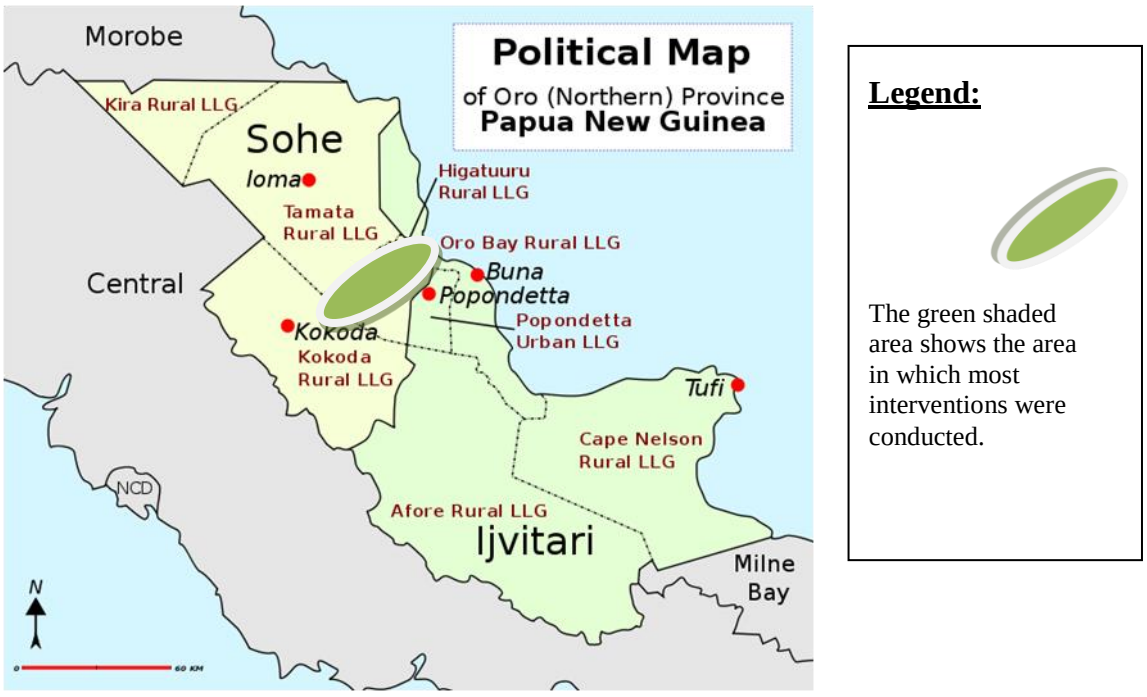
[30] phase 1.

[31] phase 2.

Organisation 7 conducted public awareness and peer education training all around the province. However, over the past five years (2008-2012), the organisation worked with the general population and did not have a targeted intervention. Therefore, organisation 7's interventions conducted in communities were not monitored for long-term outcomes, such as increased and consistent condom use. Most of the HIV and STI prevention awareness education was conducted only once with no follow-up.

The areas between the inland station and the coastal port were considered high risk areas. The income generated by the oil palm as a cash crop, and the sale of areca nuts (betel nut) provided an income for the local people living mainly within the urban local-level government (LLG) area. The Kokoda trail generated incomes for the communities living along the trail, while the coastal port was used for the shipment of betel nut bags. It was a cheaper medium of transport used by many individuals when travelling to other towns in PNG and into the Highlands provinces, and other mainland provinces of the country.

**Figure 6. Map of Northern Province: Intervention Coverage Area**




**The Organisations recruited in the Study**

This section of chapter 4 presents the findings of the situational assessment. Although descriptive, the findings are the outcome of the data collection in phase 1 of the study; therefore, they are presented as results of the study. The profiles of the organisations given in this section will provide the understanding of the challenges faced in implementing HIV interventions in the study location. The section begins with organisation 6 as organisation 1 was not recruited in the study.

**Organisation 6 – Government Sector**

Organisation 6 is the coordinating agency responsible for overseeing all HIV prevention programs in the province. Since its inception in 2003, it has suffered under poorly functioning managers and administration. Organisation 6 has changed the provincial HIV Response Coordinator (HRC) three times as a consequence of misconduct in the office. According to key informants, the instability in the leadership has been a major hindrance to the organisation's functions, due to funds being used on activities that were unrelated to HIV prevention. Consequently, organisation 6 has not effectively delivered its expected outcomes, such as: strengthening working relationships with other partners, systematic coordination of interventions in the province, updated and consistent database for monitoring activities, and consistent and accurate annual financial records. During the first phase of the study in June 2011, the organisation was relocated twice within a space of five months. The moves were due to the high cost of rental payments. The change in office locations caused disruptions to annual planned activities, as the relocation of offices was an unplanned activity. Nevertheless, at the end of the first phase of this study, the operations were ongoing and the organisation had new full-time staff and a new manager. By the time the second phase of this study was conducted in June 2012, the new manager had vacated the job, after being robbed three times in town. That left the management in limbo, as there was no proper transfer of roles and responsibilities to existing staff. By the end of this study in May 2014, the organisation had a new office which was fully furnished and provided good accommodation for the remaining staff. However, there were uncertainties with regards to future funding.

The main working partners for organisation 6 were organisation 7 and organisation 8. Organisation 7 provided logistics and administration support to organisation 6 during the times when organisation 6 had management problems. The support included the use of printers, fax and telephones. According to staff member from organisation 6, organisation 7

was organisation 6's most active partner in delivering HIV prevention services to the people of the province through community awareness, HIV screening and providing care to PLHIV. Organisation 7's interventions had covered most districts of the province in the past seven years; therefore, organisation 6 considered organisation 7 as a strong partner in delivering HIV, AIDS and STI prevention awareness through education and voluntary testing and counselling (VCT) to the Northern Province population. Organisation 6 has supported other organisations in the province with logistics, such as transport and equipment for public presentations. Since the province's main income-generating commodity is the oil palm industry, organisation 6 has worked in partnership with organisation 8 to reach workers in the oil palm company and the oil palm block holders.

Despite the management and financial challenges faced over the five year period 2008 to 2012, organisation 6 managed to support community theatre groups and HIV awareness programs delivered by sports groups, youth groups and women's groups. These are community groups which do not have any affiliation with other partners in the province. Funding requests from the community groups were submitted to organisation 6 and later sent to the national coordinating agency for funding approval. The proposals were approved if they were aligned with the HIV and AIDS National Strategic Goals. Once funding was approved, money was transferred to organisation 6 to be distributed to the community groups for implementation of their proposed activities. All funding advances were acquitted with organisation 6. The community-based groups operate independently and therefore it is difficult for organisation 6 to coordinate systematic reviews of the outcomes of the HIV interventions through theatre and sports.

Organisation 6 has been a major collaborator with organisation 2, through the establishment of the VCT centre at a rural health centre. Organisation 6 donated K80,000 (AU$30,000) to help the organisation 2 set up a counselling office and HIV testing room at the health centre in 2010, as the health centre is a government health facility. Conversely, during the course of this study, the VCT centre had been completed but was yet to be utilised.

**Organisation 2 – Government**

Organisation 2 is currently involved in the curative aspect of sexually transmitted infections (STI), and is a partner in HIV prevention at the tertiary[32] prevention level. HIV and STI prevention components under organisation 2 are conducted at its urban clinics and through its rural facilities at two[33] health centres.

There are five major health facilities, including several smaller rural aid posts, under the administration of organisation 2. However, only two health facilities are actively involved in HIV prevention through screening and treatment of opportunistic infections among people living with HIV. There are three urban clinics, the first urban clinic delivers services for children's immunisations, and ante-natal clinics; the second urban clinic provides treatment for out-patients; and the third urban clinic, is the referral hospital and accommodates hospital admissions. The first urban clinic conducts rapid HIV tests among women attending antenatal clinics. The General Hospital, which comes under organisation 2, has a laboratory where HIV reactive tests from other HIV screening sites are taken for confirmation. There are no other HIV screening sites, apart from the two health centre in the province. However, HIV screening at the health centres are conducted by staff of organisation 2 seconded to these two health centres. Both are rural health clinics that provide HIV prevention services to the inland communities of the province. Although one of the health centre has an STI clinic, at the time of this study the clinic was not in operation.

**Health Centre A**

Health Centre A comes under the administration of organisation 6. It is within the government sector. The health centre is situated 78 kilometres inland from the provincial town. The health centre is involved in secondary prevention through HIV screening. The primary prevention activity in HIV prevention conducted at Health Centre A, is the treatment of sexually transmitted infections. In addition, those reporting with STIs are provided the opportunity to take an HIV test. However, this study found that STI patients treated at the Health Centre A were reluctant to test for HIV because of embarrassment and fear of stigma. There were more females than males reporting STI symptoms, such as

[32] Provides treatment to PLHIV to prevent opportunistic infections, but the department does not administer ART to PLHIV.

[33] Health Centres A and B as described in the next section.

discharge and abdominal pain, at Health Centre A. Males usually visited the health centre after five o'clock in the evenings to report STI infections, when male staff were on night shift duties. The health centre has recorded an increased number of STI reported in the last five years.[34]

HIV screening at Health Centre A began after organisation 7 conducted VCT training with the Health Centre staff in 2007. The HIV screening was conducted by a staff member of organisation 6 based at Health Centre A. The staff member, who is a counsellor, is responsible for HIV screening among women attending antenatal clinics, and other clients attending voluntary HIV testing and counselling. On average, 30 women attending the antenatal clinics were screened each month at Health Centre A. So far there have been no HIV positive cases reported among women attending antenatal clinics. The average number of people who attended VCT was five per month. More people attended VCT at the beginning[35] of the year and towards the end[36] of the year, which are the off-season periods for trekking. Since 2007, there were over 10 reactive HIV tests reported at the Health Centre, all of which have been confirmed as HIV positive.

A staff member at the Health Centre A received training in administering ART to people living with HIV (PLHIV) but the Health Centre has not provided ART treatment because ART services are not provided in the province. Apart from a staff member at the Health Centre A who has since left his job, two other staff from organisation 2 were trained to administer ART. However, by the end of this study in January 2013, the three trained staff were not utilising their skills in ART administration to PLHIV. Organisation 3, which is run by a private company, is the only health facility providing ART in the whole province. Staff at Health Centre A received sexual health training from organisation 11 in 2009. The training included the syndromic management of STIs. There has been no review of the HIV prevention interventions carried out at the Health Centre A since its inception.

Organisation 2 participates mainly in the tertiary prevention of HIV; therefore, the detection of HIV is often made at a very late stage of the illness. Most HIV cases identified through the government health facilities are fully blown AIDS. Since there is only one laboratory in the province, the health facilities collect sentinel data for the province and

[34] Researcher was unable to get statistics on HIV and AIDS due to confidentiality issues.

[35] From January to March.

[36] From October to December.

send it to the National Department in another city in PNG , every month. The summary HIV statistics are compiled and analysed in in that city, together with the rest of the country's HIV data. An annual HIV surveillance report is produced by the NDoH surveillance unit, which provides the data on HIV prevalence and incidence in the Northern Province each year.(78) Getting primary data on the prevalence and incidence for the past five years has been difficult; therefore, this study had to source secondary data from other sources.

**Organisation 4 – Church**

**Health Centre B**

Health Centre B is a church-run health facility which is managed organisation 4. The health centre had a working collaboration with three major partners to arrest the spread of STI and HIV. The partners were organisation 7, organisation 5 and organisation 11. All three partner organisations ceased operations between 2012 and 2013, which resulted in a gap in service delivery in HIV and STI prevention.

At the time of this study, the health centre was staffed by 13 health workers. The health centre is situated 44 kilometres from the provincial headquarters. VCT at Health Centre B began in 2007, and since then five people have been confirmed HIV positive.[37] The HIV screening is also conducted among women attending the antenatal clinic, but to date no HIV tests from the antenatal clinic have been positive. However, according to clinic health centre staff, there has been an increase in the number of STI cases reported among pregnant women. The common STIs reported have been syphilis, gonorrhoea and genital warts. The VCT centre recorded an average of 20 clients a month when it first opened. The number of clients visiting the VCT centre for HIV tests has decreased over the years to an average of only one client per month. Although the counselling on HIV-related matters has decreased, there were clients who visited the counsellor for other non-HIV-related issues such as marital problems, fertility problems, and work-related stress problems. The counsellor used these opportunities to integrate HIV and STI prevention messages into the sessions on non-HIV and AIDS-related topics. There are no other general counselling facilities in the province, and people considered the VCT counselling service as

[37] As at June 2012.

the best avenue to receive counselling for social concerns affecting their families and themselves.

Condoms are distributed at the health centre, these being supplied by organisation 7. Previously, the health centre collected its condom supply from the organisation 2. Male condoms are commonly taken by the public. Women also collect male condoms. Female condom demonstrations are given to females but are not generally accepted because of the perception that female condoms look too big. Male and female condoms are supplied to STI patients after treatment if requested. Nonetheless, STI re-infection has been a major issue at the health centre. The health centre has had collaboration with the organisation 5 to run a STI clinic. However, the organisation 5 ended abruptly in 2012.

Health Centre B has different activities scheduled for each day. On Mondays the VDRL kits are issued for syphilis tests. This is the only day when syphilis tests are taken. Tuesdays are its antenatal clinic days; it is also known as a women's health clinic. On Tuesdays, female staff are scheduled to attend to female patients. Wednesdays are dedicated to immunisation treatments for babies. The men's health clinic is conducted on Thursdays. However, attendance of the men's health clinic has been poor, possibly due to the males' health clinics being conducted in the same building (Figure 7) as the antenatal clinic and the STI clinic. The same building is used for VCT as well. Organisation 11 also worked in partnership with organisation 4 to renovate the buildings at Health Centre B. That partnership ended in 2011 when organisation 11 ended.

**Figure 7. Health Centre, STI and VCT Clinic**

**Organisation 5 – Development Partner**

Organisation 5 was integrated with organisation 4 in 2007 and subsequently operated for four years. The main purpose of the organisation was to treat all STIs in a specific location to minimise the spread of HIV. Based at Health Centre B, Organisation 5 was managed by a coordinator with the assistance of three staff, a male and two females, employed by organisation 4. The coordinator was employed by organisation 5. The staff working at the STI clinic were trained to administer the syndromic treatment to all patients with STI signs and symptoms. The syndromic management training was facilitated by organisation 2. During the second phase of this study, the coordinator of organisation 5 left for another job in another town in PNG. By the time this study ended, it was difficult to establish what the future status of organisation 5 was going to be in the province.

**Organisation 7 – National NGO**

For organisation 7, constant changes in intervention strategies often left the management and staff in limbo. As the program was managed by the head office in another part of the country, Organisation 7 had to adhere to directives from the head office. The organisation has its headquarters elsewhere in the country. It has branches in other parts of the country. Organisation 7 is involved in HIV prevention at the primary[38] and secondary[39] prevention levels. The organisation's operations began in 2005. The program in the Northern Province consisted of three components: 1) management and administration, 2) training, prevention and awareness, and 3) voluntary testing and counselling (VCT) and home base care (HBC). However, with a change in prevention strategy within the organisation nationwide program in June 2011, the training component was separated from prevention and awareness, and formed a fourth component.

At the beginning of this study, the organisation had 22 staff members, 12 males and 10 females. By the third phase of the study, the number of staff had decreased to 15, 10 males and five females. The drop in the number of staff was a result of a decline in funding by the major donor. Northern Province was considered a low HIV risk province and organisation 7 had a generalised intervention role; therefore, it was not considered a priority province for further funding support.

The prevention and awareness component was tasked to conduct general awareness of STI and HIV, as well as reproductive health through peer education training, community awareness talks and through drama and video shows and condom distribution, In February 2012, the community conversations method was included into the organisation's HIV prevention activities. Despite regular blackouts and low water pressure at the office, the staff work from 8am to 4pm from Mondays to Fridays. Partial funding came from another source for peer education training. The staff under the prevention and awareness component made direct contact with the local communities. Most of their contacts with the communities were enabled through the partnership with organisation 1. The component conducted public awareness followed by drama sessions and video shows at night, when films related to HIV and AIDS were shown. The component notified the

[38] Delivery of information and condoms through public awareness, schools programs, drama, peer education, and HIV screening.

[39] Provided pre- and post-test counselling for HIV screening. Care, support and training were provided to clients who were tested HIV positive.

people about the other services provided by the organisation. Most of the awareness and prevention activities in 2010 were conducted in villages.(174) This primary prevention strategy through awareness in communities was carried out when organisation 7 worked among the general population from 2005 to 2011. The organisation conducted a generalised intervention (175) until early 2012, when interventions became more targeted among selected high risk communities.

The training component of organisation 7 conducted training on the topics of HIV and STI transmission and prevention, VCT which covered positive living for people living with HIV, and issues on human rights and gender equality. The organisation used the standard basic HIV and AIDS training manual used in most HIV awareness training conducted in PNG. The training manual was produced and distributed by the National HIV and AIDS Training Unit (NHATU) of the National AIDS Council. The training team facilitated a two-week workshop covering topics on HIV and AIDS transmission, prevention, treatment and care. Follow-up training was conducted four to five months after the first training, to assess the performance of the trained peer educators. Volunteer peer educators who remained active by conducting interpersonal HIV awareness among their peers were certified as peer educators in their respective communities. Typical of the experiences of peer educators, Nancy, provided the following description:

> *Under training we have three programs. That is, training itself, school program and literacy program. As for me, I'm a trainer. Underneath this training program I conduct peer education training, and introduction to basic HIV and AIDS. I've been here for only three months, and I only assisted to prepare and develop and implement the training to go with the organisation's guidelines. And I've gathered a list of participants from various communities who want to attend training. I submitted the list to the training coordinator who will schedule them or will confirm the training dates with them. I make sure that the room is clean, equipment is ready, and requirements are prepared before the training sessions. After the training I make a report about the training to the training coordinator. The training materials are supplied by NHATU* (Nancy, female, FGD).

Meanwhile, the voluntary counselling and testing (VCT) and home-based care (HBC) staff were responsible for counselling, HIV screening and care for persons living with HIV (PLHIV). Other stakeholders in the province referred PLHIV to organisation 7 for VCT and HBC services. staff of organisation 7 conducted the VCT for the general

public, as well as for women attending antenatal clinics at the Health Centre A and Health Centre B. The two seconded staff were trained by the counselling unit of the NACS and are certified HIV and AIDS counsellors in the province. In the home-based care, the family members of persons living with HIV are counselled and trained on how to take care of the HIV positive persons in their family. Stigma was still a barrier, which often resulted in a reluctance to disclose HIV positive status to spouses or sexual partners. The following description of home-based care was provided by Rosa.

> *With the home base care, we do activities like home visits, hospital visitation, ART monitoring and help to treat opportunistic infections and management, and monitor the health of PLWHIV. We conduct ongoing counselling which covers positive living, couple counselling, drug adherence, and nutrition. So, most of our activities involve people who are living with HIV, the infected and the affected. And it was a milestone for organisation 7 to start the PLHIV monthly meeting in the province. Stigma and discrimination surrounding HIV and AIDS is high and we see this when our clients find it very hard to disclose their positive status to their spouses and sex partners. But with PLWHA coming for the monthly meeting, it was a breakthrough for the barriers of stigma and discrimination, and that is a milestone we set. And also we are trying out people who are already infected on positive living and who are on ART. We are monitoring two groups of PLWHIV and they are doing very well. But the constraint now is that, organisation 7 does not have transport. When we are going out to the field doing home visits or when we are trying to transport very sick people from their homes to the hospital, we hire transport. So that's the big constraint for us where we cannot effectively carry out our home base care activities. Another problem is that we lost two lives last month because of them being diagnosed very late and then we tried to help them by bringing them to the hospital but we lost them. And it's our aim to see that we do not lose any more lives now. Another constraint is with anti-retroviral therapy (ART). Our ART was prescribed by organisation 3 but sometimes they let us down. By not supplying the ART on time for our clients and they delay. Yes, there is inconsistent supply to our clients at times. They even run out and live days without ART.* (Rosa, female, FGD)

Organisation 7 has endorsed and supported a network of PLHIV. Rebecca described those early days as follows:

> *One thing I acknowledge about work with our home base care here is that we have established networks among PLWHIV. When I first started work here, I just monitored clients by conducting home visits, hospital runs and visits and that was not effective because I felt we didn't do enough for those that had HIV. We were providing service for those with full blown AIDS only. So through organisation 7, I made arrangements with GIPA (Greater Involvement of People Living with HIV and AIDS);*

> *that is the national group that networks everybody living with HIV around the country and coordinates activities to support provincial PLWHIV groups. We formed a group here and we have a president, vice-president, secretary and treasurer who form a board committee. Under organisation 7, we have monthly meetings and provide support to those who wish to attend. This group has been growing in number over the months and we currently have close to 30 people who frequently seek information and support as members of the group.* (Rebecca, female, FGD)

With the growing number of PLWHIV, logistics and the sustainability of PLWHIV groups has become a challenge. Typical of some of these changes were described by Maria.

> *We are doing what we can do within our current capacity, but sustainability of our clients is another thing. People are breaking through the stigma and already coming out. But how to empower them to disclose their status is what HBC needs to do. We can try our best to implement the organisation's activities, such as providing referral to health care in the hospital, but they need to be empowered to do this on their own, to go to the hospital on their own without waiting for us to take them. Otherwise we'll be saying you come out, you come out, but they'll be questioning us, what's there for us? So we have to see and weigh things out. The group is a registered group. We are trying out ways to sustain the group. Every time we carry out home visits, they say, "Oh, nice to see you, you are coming to help us but we have these needs, and that need". Then we keep telling them, we cannot help you with some of your needs such as personal needs like financial needs for food. That also gives us problems to those of us directly dealing with these people; I feel helpless. Like me as the supervisor, I take up the burden. I find it hard to explain and I keep telling them, I cannot go beyond that and I cannot do much on that. I cannot say something that I am not sure of. It's not coming out clear how we are going to sustain our PLWHIV.* (Maria, female, FGD)

Organisation 7 had a well-structured program with sufficiently trained and experienced staff. Despite various challenges, the program had a robust administration and therefore was the longest serving organisation in the province, conducting front line HIV prevention among the local populace for almost a decade. The funding ceased in June 2013, which left a huge void in the HIV prevention activities, such as peer education among young people, VCT and home based.

One of the obstacles faced in the province has been staff turnover. Well trained staff in key positions such as managers of projects left the province, either to another

organisations or were transferred to higher positions at head offices in the urban centres of the country before the projects they worked on in Northern Province had officially ended. Organisation 5 and organisation 8 experienced such situations where the coordinator of organisation 5 changed jobs and moved out of the province, while the manager of organisation 8 was transferred from the Northern Province to the head office in another part of the country.

**Organisation 8 – National NGO**

In May 2004, a High Risk Settings Strategy (HRSS) was designed to respond to the urgent need for a targeted behaviour change intervention. The focus was on the most at-risk and vulnerable populations in settings throughout PNG where HIV transmission was known or likely to be high. It was submitted and approved by the Behaviour Change Advisory Committee in June 2004, and endorsed by the National AIDS Council in the same year.(176)

In July 2006, the term 'High Risk Setting Strategy' was re-branded; organisation 8 is known by this name. The name change was made to encourage a more positive message and to reduce the potential for stigmatisation of communities that were involved in the project. Organisation 8's primary focus is on individual risk behaviours and the community factors that reinforce certain risk behaviours. The organisation aims to build the capacity of communities through capacity building programs, thus empowering them to respond to the epidemic by using locally available resources with funding support from organisation 8. The organisation diffuses its interventions into the communities through its volunteers in the project sites. It has 75 sites across 12 of the 22 provinces in PNG. Its main office is located in another town in PNG. The organisation currently uses the PNG National HIV and AIDS Strategy 2011–2015 as its guideline to roll out its projects around the country.(176)

The organisation's HIV interventions in the Northern Province were initiated by a private company in the province; and funded by a development partner. The intervention sites are considered to be high risk settings because of the high flow of cash within the area they work in. The project works closely with PLHIV in order to provide ART and other supportive services. The project's main mode of activity is HIV primary prevention through peer education and the distribution of free condoms. Organisation 8 networks closely with

the organisation 7 and organisation 3. By the end of the third phase of this study, the manager who worked to establish the intervention over the last three years was transferred to the head office in January 2013, leaving the position vacant. At the time this thesis was written the position was still vacant.

**Organisation 10 – National NGO**

Similar to organisation 8, organisation 10 and organisation 9 have conducted targeted interventions. The aims of organisation 10 are to: develop a reliable and efficient client service arm to deal with HIV and AIDS queries from private sector workers and their employers and to act as a referral agency; develop a business case for HIV prevention and awareness from an employer's perspective; and to work with employers to develop a workplace policy with emphasis on the elimination of HIV-based discrimination in the workplace. The organisation also ensures a consistent approach in dealing with employees who are living with the AIDS virus, develops and coordinates HIV awareness and behaviour change programs for private sector workers, and ensures private sector employees have access to HIV treatment and services.(177)

Organisation 10 conducted HIV prevention training for volunteers in the private workforce sector in the Northern Province. The organisation has trained peer educators in workplaces. The selection criteria for organisation 10's volunteers required that the individuals have some knowledge of HIV and AIDS, and for them to have some leadership role in the company, and educational level at year 10 and above. The training usually took three and a half days and included topics on the transmission and prevention of HIV and STI, gender issues, stigma and discrimination towards PLHIV, the increasing prevalence of HIV, and infections and other matters relating to HIV and AIDS. Brochures and other written information on HIV were distributed after the training. The training materials were developed by the NHATU of the National AIDS Council. The work of the volunteers was monitored through regular phone calls every four to six months. The training participants were assessed after a year. During the assessment, individual presentations were prepared and presented by the volunteers regarding their work and what activities they had conducted after attending the training in the previous year. Upon satisfactory assessment, a volunteer becomes a peer educator. After certification, the individual was provided with information on HIV and STIs. In addition, peer educators were informed about the other

HIV prevention partners in the province they were to network with, for services organisation 10 did not provide in the province. For example, if an organisation 10 volunteer was faced with a situation where a workmate wished to be tested for HIV, the peer educator would make an arrangement with organisation 7 for a HIV test to be conducted with the colleague.

The organisation monitors the activities of its volunteers as well as its own training activities. However, according to interviews conducted with staff, there has been no impact study conducted to assess the effectiveness of its peer education interventions. Below are comments from an interviewee relating to organisation 10's HIV activities:

> *You know, I always think that we need to evaluate our work as we go along, because we give out lots and lots of male and female condoms year in, year out, but we do not know whether these condoms are used for sex or thrown away. I personally would like to know that some risky sexual behaviours are changed. For now, I do not know because there has not been an impact study conducted in the country for organisation 10's HIV prevention work.* (Elizabeth, female, key informant interview)

**Organisation 9 – International NGO**

With financial support from three development partners, organisation 9 implemented a behaviour change communications (BCC) program to reduce the incidence of HIV in PNG. This program consisted of a 3-4 day men's sexuality and sexual health workshops for male employees in the target locations, as well as community leaders and church leaders from villages in the enclaves. Organisation 9 focused on two main sexual behaviours: the reduction of concurrent sexual partners and the correct and consistent use of condoms.(178) These health behaviours were framed within the context of improving the quality of primary relationships through better sexual health, greater intimacy, and better sex.(178)

Organisation 9 was the HIV prevention implementer under the organisation 11 in the Northern Province. Organisation 9 worked in collaboration with organisation 3. It focused its training on the topic of male sexual health and integrated HIV and AIDS messages into the sexual health training. The organisation has been conducting BCC intervention in the province between 2008 and 2011.(179)

Organisation 9 aimed to encourage correct and consistent use of free and socially marketed condoms through the intervention methods of interpersonal communications (IPC) and mass media activities that promoted: correct and consistent use of condoms, the benefits of partner reduction, and responsible and consensual sexual relationships.

**Organisation 3 – Private Sector**

Organisation 3 belongs to a private company.. The organisation is the only service provider in the province that provides the anti-retroviral treatment (ART) for people living with HIV (PLWHIV). Organisation 3 works in partnership with organisations 7 and o8.

Despite the differences in the intervention strategies that each organisation had, there was a common goal shared and that was to prevent the spread of HIV at the primary level. All nine organisations participated in the primary prevention of HIV and STI (Table 10). This main focus that all organisations shared was crucial to strengthening working relationships with each other; however, a main complaint that most study participants raised was that there was very little collaboration between all organisations.

**Table 13. Participant Organisations and the Levels of Engagement in HIV Prevention**

| No. | Number of organisation | Level of HIV prevention engaged in | Sector | Intervention target |
|---|---|---|---|---|
| 1 | 6 | Coordinating role, primary prevention through condom distribution. | Government | General population |
| 2 | 2 | Primary prevention through treatment of STIs. | Government | General population |
| 3 | 7 | Primary, secondary and tertiary level of HIV prevention. Primary prevention through education and free condom distribution. | NGO | General population then changed to location specific |
| 4 | 4 | Primary prevention through STI treatment. | FBO | General population |
| 5 | 5 | Primary prevention through STI treatment. | Development partners | Location specific |

| | | | | |
|---|---|---|---|---|
| 6 | 8 | Primary prevention through education and free condom distribution. | NGO | Sex workers, clients of sex workers and out of school youth |
| 7 | 10 | Primary prevention through peer education and condom distribution. | NGO | Private sector |
| 8 | 9 | Primary prevention through education and social marketing of branded condoms. | NGO | private sector |
| 9 | 3 | Primary prevention through treatment of STIs and secondary prevention through anti-retroviral treatment. | Private | General population |

Phase 1 was conducted to develop; an understanding of context for HIV health behaviour change activities, working relationships with stakeholders, themes and topics for further study and the appropriate study design for the next two phases.

## 4.4. Partnership among Stakeholders

The analysis of the data obtained from focus group discussions, key informant interviews, observations and the literature review, showed that there was little collaboration amongst stakeholders due to a lack of communication among managers of stakeholders. There was little understanding of what others were doing and that a lot of work had to be done to strengthen working relationships with the other partners in the province. Referral systems were ineffective, which signalled weak partnerships between health facilities and primary prevention implementers.

At the time of the first phase of this study, it was unclear how the prevention activities in the province would be coordinated. Despite probing, ambiguous responses were provided.

In phase one of the study, almost all organisations agreed that there was a lack of collaboration among the stakeholders in the province. Organisations worked in isolation and were not aware of the specific content of the other interventions. There was a lack of communication between stakeholders in the province and there was no system in place for

consultation and collective decision-making in the province. While the other organisations expected other organisations to make the initial contact, these organisations appeared to have the expectation that it was the responsibility of the other stakeholders to inform them of their activities. One informant reported:

> *If (named organisation) is aware of what stakeholders are doing, then it can coordinate. If there's no relationship, then how would one know those people working in the province, what are their constraints, what are their needs or aims or what are their objectives or, you know, their plans? Otherwise if there's no good relationship, then messages are not coming back to us and we would not know how to coordinate them. They have done that so what's the next step to support them with logistics or funding? And you'll see there's a cut in the service delivery.* (Jacob, male, KII)

Although one organisation was informed of the activities of the stakeholders through the submission of monthly reports, meetings had never been conducted with all stakeholders in the past three years. While this organisation expected stakeholders to meet with them, the stakeholders expected that organisation to facilitate meetings to call for a stronger collaboration and partnership. This confusion was well described by Elizabeth and Ray as follows:

> *We all seem to work in our own little corners within our own programs. There is very little networking going on between the partners here in this province. We have all lost touch in a way. They don't call any meetings so that all partners can meet and talk about the HIV issues in the province.* (Elizabeth, female, KII)

> *We don't know what other organisations do. We only meet with people who come from Port Moresby. We as local staff working in HIV prevention have never heard from (Organisation named). It would be good if we had at least regular meetings together with everyone, so we can get to know who is who and who does what, so that will also strengthen the referral systems with the other service providers.* (Ray, male, FGD)

All organisations performed their tasks independently. They developed their own annual activity plans and implemented them. Most organisations worked within their own structures and management decisions. Some organisations had their head offices in other provinces and therefore were in constant communication with a higher level of management outside the province. There was limited sharing of lessons learnt from monitoring or evaluation of programs. M&E was a top-down activity for reporting against national indicators.

Despite the weak collaboration among organisations, one organisation was a more stable implementer of HIV prevention and had stronger networks with all other stakeholders in the province. The organisation had good working relationships with other stakeholders. Many study participants described this working relationship in the following terms:

> *Our major partner is (organisation named). We had our own problems within the administration. They have been the only organisation that has been active. We rely heavily on them because they are the ones covering the province.* (Jacob, male, KII).

> *We have a good partnership with (organisation named). They have full-time staff based with us conducting HIV testing. So they help us in other ways too, like providing condoms when we need them.* (Lionel, male, KII).

> *(Organisation named) has been here for a while and they have the experience we need to learn from so we try to partner with them in our STI and HIV prevention activities. They are a key partner for us, so it's important to collaborate with them in our health programs.* (Gretel, female, KII)

Collaboration with another organisation was mentioned but its program was considered to be more associated with the private sector, rather than with the community at large. One informant described this perception in the following terms:

> *We have (organisation named) too. It is another big stakeholder in the province. Although we would like to build a stronger partnership with them, they are more or less confined to their location, and to their own strategies. They are only looking at prevention, they are not venturing into care and counselling, ART services or whatever, so they are looking at prevention only through education.* (Jayden, male, KII)

Further probing on stakeholder collaboration found continued reference to the weak linkages in the referral systems. Concern was raised about how this negatively affected referral of people to health facilities for treatment, as reflected in the comments below:

> *I see that when PLHIV come to my end and when I refer them to other health service providers, they are hesitant to go. They don't feel open to go to the hospital and get treatment. They come back and want me to go on behalf of them and get the treatment for them. With the number increasing, most of them are going to run to us for these services. With the limited resources we have we cannot go further than that. This is a big problem we are encountering. Like the day before yesterday, we had a caregiver here who was here to get treatment for the daughter. I went*

*out and tried at the hospital and provincial health, those boys that I normally go to and get my supply from; they were out so I tried and tough luck. I came back and I wasn't happy and I didn't want to attend to the caregiver so I asked another colleague to attend to him because I did that several times. Although we have what is supposed to be a network of partners, the network is not very effective.* (Maria, female, FGD)

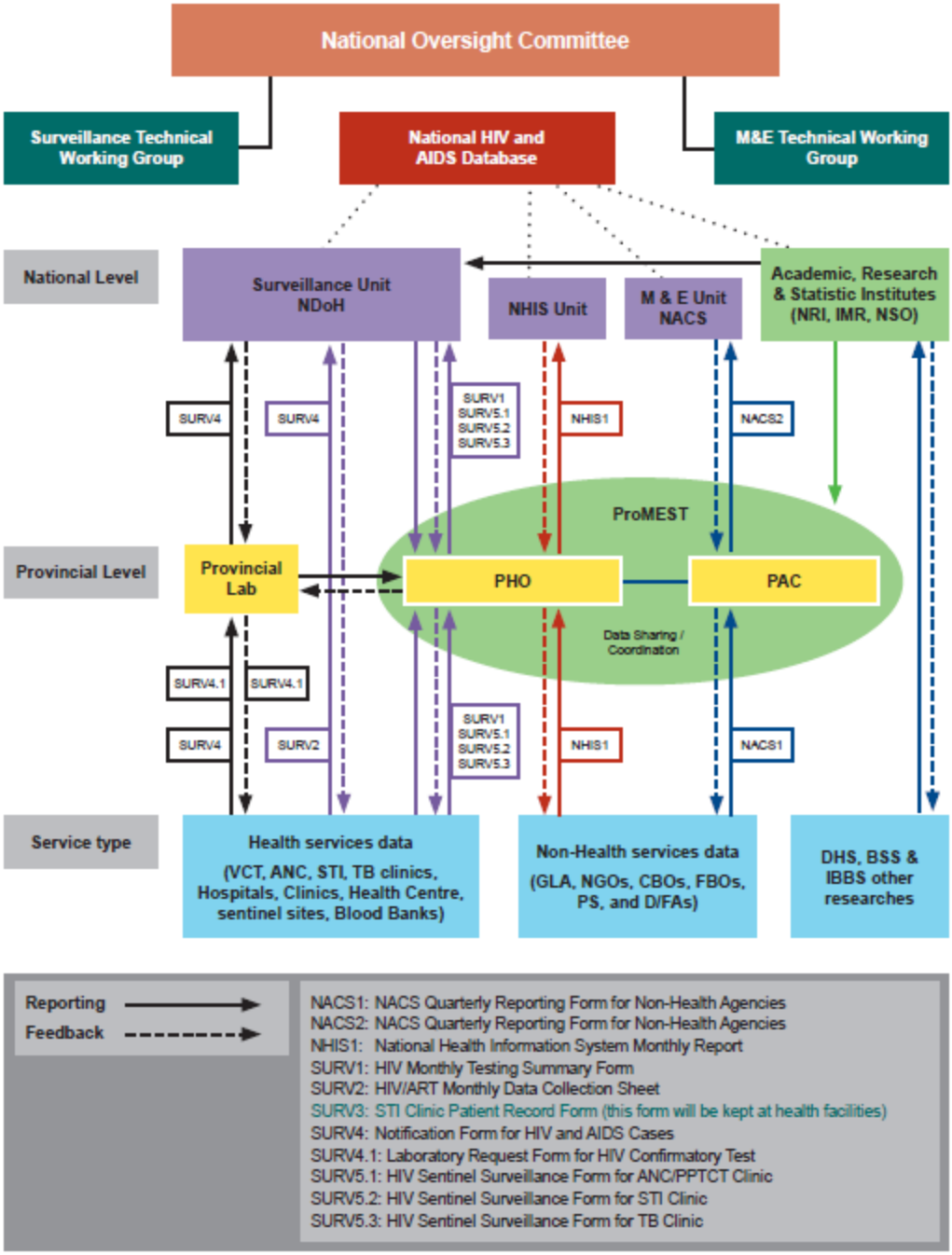
*It's been difficult for people living with HIV to get ART., so we collect the drugs for them and bring it right to their houses. Even when we refer them to the ART clinic, they don't go, so we collect their medicine supplies for them and deliver it to them in their villages. The referral system is a problem.* (Rosa, female FGD)

## 4.5. Evaluation Capacity in the Study Location

The implementation of HIV and STI prevention in the Northern Province through education, screening, treatment and care programs has not incorporated systematic evaluation. Although there is a national M&E framework (19) in place to ensure a consistent and reliable flow of data between the community and national levels, it is difficult to verify that the long-term outcomes for the HIV interventions have been accomplished.

Analysis of the data collected identified three main gaps that have contributed to the weak system in the province. Firstly, the provincial evaluation M&E system did not function when the M&E framework was rolled out because there was no leadership in M&E. This created huge information gaps in the province's HIV and AIDS surveillance and data management at the beginning of the HIV interventions. The nine organisations studied in this research use the national M&E framework to report to the National AIDS Council in Port Moresby and the National Department of Health. The M&E framework was developed to guide STI, HIV and AIDS monitoring, evaluation and surveillance activities in PNG.(19) Organisational structures were established to oversee the implementation of the M&E framework. At the national level, such organisations include the M&E unit and the Research Coordination Unit of the NACS, the surveillance unit and the health information system at the NDoH, and the national research institutions, the PNG Institute of Medical Research and the National Research Institute (Figure 8). At the provincial level, the Provincial Monitoring and Surveillance Team (ProMEST) was established to oversee STI, HIV and AIDS data processes. The ProMEST was responsible for coordinating data flow within the province (Figure 8).

**Figure 8. HIV and AIDS Data Flow in Papua New Guinea**




Source: Papua New Guinea National HIV and AIDS Strategy 2011–2015, p.14.

In the Northern Province, ProMEST consists of the provincial health department, the provincial AIDS Council and key program implementers and service providers. The provincial team that was to coordinate the implementation of the national HIV prevention M&E framework was created in the province, but was a non-functional until the end of 2011.

Stephanie, Jacob and Patrick described the inactivity of ProMEST in June 2011 (phase one) as follows:

> *I'm working to have the ProMEST team revitalised so that we have all the data and establish that pathway so that we have information for the province. At the moment we don't have the data. Various organisations may have it but it's confined to their own setting. For example, (organisation named) have their own data but it's confined to their own setting. ProMEST is something like a provincial group that brings all the data together so, like, once you're doing your research and you need information from the province, you just go there [to ProMEST] and they print out everything for you. That is not currently in place.* (Stephanie, female, KII).

> *ProMEST is only on papers [reports]; it's indicated that it's there but the actual activity itself is non-existent, so we're trying to revitalise ProMEST. Get it active again. We will be calling a meeting with the stakeholders to work with them … also from the provincial perspective, we don't have any data so we have to start somewhere.* (Jacob, male KII)

> *ProMEST is not working. It's supposed to but I do not know. We do not know who is supposed to do that. People in authority are not pushing forward for it; that's why it's not happening. Another thing is that maybe we are not submitting data. Like all other stakeholders are holding onto their own data and are not prepared to share. Maybe, that's why. But with this new NHS [National HIV and AIDS Strategy], its asking all of us to work together so if (two organisations named) take a lead in that, then I think we will start something in the province. Currently we are still waiting. You know we wait for them to call meetings so that we'll know that they want us to give data and other things that they might require from us. We expect them to call meetings and there's never been any meeting for some years now, so let's hope that that trend will change.* (Patrick, Male, KII)

It is usually at the ProMEST meetings that data from the different organisations are shared to inform the group about the current figures of reported STIs and HIV positive cases. The same information is submitted to the PAC every month. What Patrick refers to is the sharing of data between organisations. When the ProMEST does not meet, organisations do not know what data the others are gathering or what latest figures on HIV are coming out from the province. When there is no avenue for open communication, this causes feelings of isolation and threat among leaders thus the breakdown of leadership.

ProMEST was intended to be in place by June 2011 but its establishment was delayed till November 2011. By May 2012 (phase 2), only one ProMEST meeting was

conducted, with very poor attendance. The ProMEST meetings were scheduled to be held four times a year but in 2012, only two meetings were conducted. By January 2013 (phase 3), it was unclear when the next meetings for the year would take place.

Informants understood that it was important to have a functioning PROMEST to cross-check data. Typical comments were raised by Sally and Solomon as follows:

> *There's no feedback coming back to us. No reports, nothing. Stakeholders in the province are supposed to come together and we'll talk about the data that we have so that all stakeholders in the province can discuss over the quarterly or monthly data. Otherwise we might be repeating the same person [double counting]*. (Sally, female, FGD)

> *It is important to get PROMEST working because this group can filter and monitor quality data that goes in and out of the province.* (Solomon, male, key informant interview)

The second gap which weakened M&E was that there was an emphasis on monitoring rather than evaluation which has been identified as a trend in development evaluation.(210) Armytage differentiates monitoring from evaluation; emphasising that monitoring serves the purpose of auditing or accountability while evaluation has a learning or effectiveness purpose. While they co-exist, their purposes are often mixed up in practice. Therefore, it is important to maintain a clear distinction between monitoring and evaluation.(210, p.263) As it showed in practice, there was prominence given to accountability rather than to learning from programmatic mistakes and challenges in the HIV prevention programs and was enforced top-down.

Most of the internal data collected over the years was not used to evaluate activities to further strengthen programs. Organisations concentrated their efforts on providing monthly and quarterly reports to offices at higher levels, while their own evaluation processes were not prioritised. Available resources were used on monitoring but not evaluation. In some organisations, the duplicate reports to several different levels of management, such as managers, head offices and donors, were time consuming and overwhelming. While ProMEST was not in operation, service-providing organisations continued to collect their own data and followed the data flow process in the NACS M&E framework. In addition, some organisations had other internal data to gather, compile and report to their head offices. Data collection for reporting purposes was routine, and many of the M&E training activities conducted for staff were based on the monitoring of interventions rather than on evaluating the long-term achievements of the HIV prevention

programs. According to many interviewed, too much time and effort was given to collecting data and compiling information in order to keep up with the demand to implement the national M&E framework. Typically:

> *Other challenges are like trying to get the things done in time. Especially when it comes to the end of the month, we do the end of month summary, monthly data summary and also when it comes to end of the quarter then we have to do the quarter summary also; after that we have to transfer the information to the NACS1 form I'm also supposed to send one to another office. So those are some challenges but when there are blackouts and we don't have power, then those are trying times. So sometimes we delay but we try to get things done on time. We monitor activities most times; not evaluate.* (Patrick, male, in-depth interview)

Amenities such as electricity and water interruptions by the town authority, low maintenance of vehicles which causes disruptions in transportation of staff and data, and lack of computer skills are additional challenges in trying to put together an effective evaluation system for HIV prevention in the Northern Province.

The third gap was the extremely limited, if any, feedback from the national level based on the M&E data from the province. Regular feedback and guidance on M&E was crucial to create a disease profile of the AIDS epidemic in the province. This was a missed opportunity for evaluating the successes and limitations of the overall HIV and AIDS intervention in the province over the past five years. Despite the explicit objective in the national M&E framework to provide feedback to community stakeholders, this was not provided from the data sent from the provinces. In the Northern Province, this may have been due to the absence of ProMEST, which played the role of the knowledge manager. The M&E system (Figure 8) illustrates a two-way direction of information flow between provinces and national levels. This was not the case of the Northern Province, as discussed by Taylor and Ray.

> *After collecting all the data at the end of the month, the summary is made and sent away to higher authorities. We do not receive the feedback until they use that data to put it on graphs and do evaluations with it, so looking at that we come up with the annual activity plans. It helps us to decide the programs and how best we can improve. So that's the only time we get feedback from the data that we collect. With the province, our M&E system wasn't really in place until this national HIV and AIDS strategic (NHS) plan was introduced to us which we are following now. We are putting together all our M&E framework and working towards*

> *achieving the national and provincial indicators that the government requires or wants us to get and report back to them.* (Taylor, male, FGD)
>
> *In the meantime we are only doing monitoring. Because of the NHS M&E framework, we see that the government or the national HIV and AIDS strategy is encouraging more research to be done so that we can work on evidence base. So with what you are doing, it's also good for the country but most specifically for Oro province, because we have never seen such research done here.* (Ray, male, FGD)

The issue with the lack of two-way information flow creates a gap between the theory and practice of evaluation. In theory, a two way information flow should occur between the CBOs and the national level agencies. However, in reality, this does not happen.

Against this backdrop of a weak provincial M&E structure, there was very little effort committed to evaluating HIV and AIDS prevention interventions. Given the institutional challenges that were faced, such as the lack of leadership in M&E, weak networks among stakeholders, and the short life span of HIV and STI interventions, there is potential to build organisational capacity to internally monitor and evaluate their health interventions that were not being addressed. Potential areas for supporting M&E capacity within organisations include strengthening collaborations among stakeholders and effectively implementing the national M&E framework.

## Conclusion

While chapter 4 describes the situation of the HIV intervention in the study location, it has also found limited institutional capacity to evaluate HIV prevention interventions. Limited capacity was found within the HIV organisations to evaluate HIV prevention programs. Several factors contributed to this limited M&E capacity including: the short life span of prevention programs, programs did not include M&E mechanisms, weak collaboration between organisations, a lack of leadership in M&E in the province, and the overall weak M&E systems. Although the early response to HIV prevention may have kept HIV prevalence low in the province, the impact of this early intervention was not evaluated.

The study also investigated the M&E capacity among individual staff working in HIV prevention interventions. This was done to provide comprehensive view of the M&E gaps and enabling factors within the participating organisations in the study location. The

findings presented in chapter 4 sets the background for chapter 5 which reports the findings on the individual M&E capacity in program evaluation.

## Chapter 5. INDIVIDUAL CAPACITY IN PROGRAM EVALUATION

Program evaluation is important for health programs, as it informs further improvement in service delivery, especially in health promotion.(1,101) However, as discussed in the literature review (Chapter 2), the evaluation process can be difficult to understand by those implementing the programs, particularly in relation to health behaviour change interventions where behaviour change theories are applied.(118) As part of the study was intended to increase the understanding why a gap existed between use of behaviour change theories and the achievement of health intervention outcomes, five research questions (Chapter 1) were explored to identify the strengths and limitations of building capacity in program evaluation. The purpose of this chapter is to analyse individual M&E skills, experiences, attitudes, and the understanding among indigenous staff working in CBO in the study location. It discusses the level and type of health behaviour change theories operating in the HIV interventions in the Northern Province. Finally, the issues associated with capacity building in evaluation are discussed.

### 5.1. Understanding of Program Evaluation in HIV Intervention

There was general consensus among the study participants that program evaluation was necessary to measure the outcomes of HIV intervention programs. A broad range of understanding on program evaluation was described, varying across the different levels of organisations that were engaged in the study. At the management level[40], there was common understanding that program evaluation was an activity built into the implementation activities of the HIV intervention programs to provide a review of the whole operation of the program or project. The role of evaluation was to inform the program of its outcomes and provide direction for the intervention. As perceived by the managers, evaluation was necessary to inform management and program staff of the successes and challenges of a program. Typical of the descriptions of program evaluation were the following:

[40] Those in management level included program managers and others with a manager title, team leaders, component heads and supervisors.

> *Evaluation is about knowing ourselves better. Knowing how far we have gone and giving us the direction to see the next thing we are going to do.* (Solomon, male, in-depth interview)

> *Evaluation em olsem long skelim wok blong mipla (Evaluation is about measuring our work).* (Wilma, female, KII)

> *We can't say evaluation is not important. It's very much important. If there is no evaluation we are like 'the blind leading the blind'. And definitely we can't make it to success; we can't really achieve our set objectives and goals if we don't have an evaluation. We won't know if there has been behaviour change among our target group. And there's not much success in evaluation. If we do have a good evaluation program then I'm pretty sure we can know where our gaps are and loop holes are; then in the next approach we can fill those gaps.* (Brian, male, in-depth interview)

Brian went on further to describe the difference between monitoring and evaluation, and expressed the opinion that evaluation was a technical field that only specifically trained people could perform. The similar view was expressed by 23 study participants.

> *Monitoring is totally different from evaluation. I think a little bit of monitoring is done by the provincial liaison officers and the coordinators that come from the head office and carry out monitoring. But those monitoring have to be evaluated as well. Monitoring is about keeping records of the ongoing activities in the program; evaluation is about reviewing the entire performance of the program. Evaluation is a technical and skilled approach and it requires people with skills and with learnt acquired skills to come and do it. To have a good evaluation, we need skilled people.* (Brian, male, in-depth interview)

Another view of evaluation expressed supports the willingness to be evaluated. This view was held at the management level of five different organisations, as discussed by Solomon.

> *Yes we need to be monitored, we need to be evaluated. Not only our programs but we need to be evaluated as persons who are involved in actually implementing the program activities. For example, if they want to evaluate me, em mi bai hamamas ya (I will be happy). If they want to use the techniques of evaluation and go and see someone and say, is this person doing what he or she is supposed to be doing? Is this organisation working well? That's fair enough. Because we need that to make us work properly and to achieve our objectives and goals. So that's okay with us.* (Solomon, male, KII)

One senior manager in a health service delivery agency further perceived the role of evaluation to include the competency of the program's administration and accounting. Although only one informant discussed this, her comments are interesting.

> *I think it's a good thing to evaluate every aspect of our work, including the competency of staff. Assessment and reviews are good for transparency of funds as well.* (Maureen, female, KII)

It was common for the terms monitoring and evaluation to be used as if they were synonymous, thereby revealing a poor understanding of evaluation. Wilma used the term evaluation to describe what seems to be input and output monitoring. Input and output monitoring involves the tracking of information about program inputs (that is, the different types of resources that go into a program) and program outputs such as program activities. Data sources for monitoring inputs and outputs usually exist in program documentation, such as activity reports, logs and client records, which offer details about the date, time, place and the quantity of services delivered, as well as the types of clients receiving services.(19)

> *Olsem mi tok mipla save lukluk bek na evaluatim wok blong mipla (Like I said, we look back and evaluate our work). Tasol luk olsem mipla nid long wokim mo wok (but it looks like we need to do more work). Change strategies to get people to respond. Evaluation is good to help us do better. Like for us, we evaluate our work every month by doing monthly and quarterly reports.* (Wilma, female, KII)

What Wilma was describing was monitoring at the activity level rather than at the evaluation level where outcome indicators are observed. These reports that Wilma refers to were on output indicators, such as the number of condoms distributed, the number of peer education trainings conducted, and so on.

At the non-management level[41], there were variations in the understanding of evaluation within organisations. Managers defined program evaluation quite differently from their staff. While managers used phrases and explanations that described evaluation as a systematic process of assessing the whole intervention to measure behaviour change over time, some non-management staff perceived evaluation to be a rapid assessment of activities. Some staff positioned at the implementation level mentioned that they had conducted their own evaluation by observing the increasing numbers of people attending

41 Any position in the organisation structure that does not require supervision of other staff.

VCT sessions soon after a public awareness initiative. The increasing number of people attending VCT soon after a public HIV prevention awareness was regarded as an impact of the activity conducted.

Some study participants understood that evaluation measured behaviour change among the target audience; however, they perceived behaviour change as an immediate reaction to HIV and AIDS interventions. Emotional responses were commonly witnessed in the communities. For example, if a person shed tears during a video show or drama, this demonstrated that an understanding of the HIV prevention messages had taken place and that behaviour change is assumed to be imminent.

> *When we present information we see the time when we are playing drama and how people are reacting, because when we dramatise we are actually putting ourselves in real life situations to actually simplify the information we present verbally into drama to make people understand so when we do that and see people cry or people coming out themselves to get HIV tests, then we know that we can measure how many people are reacting and how many people are coming out to actually appreciate what we've done and to share with us their feelings and thoughts. We know that people can understand and change their behaviours.* (Ray, male, FGD)

Certain managers knew that the understanding of M&E was low among their staff.

> *There is a lack of understanding on program logic and logical framework. People may use the word log frame but the understanding of what it actually means, of how it actually relates to programs and how it links into the development of indicators and monitoring, isn't there. I mean I've heard one example where a staff member just wanted to draw a table and he said oh we'll draw a log frame and I was like, oh that's interesting, he's doing a logical framework on this but no he was literally just drawing a table. So the comprehension of what those terms actually mean isn't there. But it can be sometimes hard to know whether someone's just using words they've heard but they don't actually understand and they're not actually applying it.* (Molly, female, KII)

Often words such as evaluation, evidence-based outcomes, logical framework and monitoring, were used out of context or incorrectly. The lack of clarity in the terms used indicated a general low level of understanding of terminologies associated with program evaluation. For instance, the term 'evidence based' was used to mean behaviour change.

Wilma*: Evidence base em taim ol man senisim pasim blong ol (Evidence based is when people change their behaviour). Mipla mas lukim olsem ol senisim pasin blong ol. (We must see that they change their behaviour)*

ML*: Wanem kain senis? (What kind of change?)*

Wilma*: Olsem sapos ol save paitim meri o kisim drugs, ol mas lusim ol dispela pasin. (Like if they physically abuse their wives or take drugs, they must stop these behaviours)*

ML*: Na long side blong HIV, wanem kain pasin ol mas senisim? (And with HIV, what kinds of behaviours should they change?)*

Wilma*: Yusim condom sapos ol no save yusim, o stap isi wantaim meri blong ol. (Use condoms if they don't use them or stay faithful with their wives)*

ML*: So yusim condom em evidence base or behaviour change? (So is using condoms evidence based or behaviour change?)*

Wilma: *Evidence based.*

ML*: Why is it evidence based?*

Wilma*: Bikos ol start lo yusim condom, em evidence blo senisim pasin. (Because they start to use condoms, which is the evidence for behaviour change).* (Wilma, female, KII)

The basic understanding of M&E among HIV prevention implementers in the Northern Province varied among different organisations and among individuals and levels within organisations. Specific words were confused and used as synonymous. Clarity and consistency in the definition of evaluation was missing, and sometimes used out of context. Data collection tools were pilot tested and terms that were understandable and meaningful were used. Triangulation of the data indicated that findings were consistent regardless of how often words were changed. But overall, the attitude towards conducting evaluations for HIV interventions was unanimously positive. All informants at the CBO level (in the Northern Province) recognised the value of evaluation and stressed the need for their respective interventions to be evaluated and improved.

## 5.2. Barriers and Facilitators of Conducting Evaluation

There are several barriers to conducting evaluations for HIV interventions in the Northern Province. One of the main barriers is the lack of leadership at the provincial level

to drive the ProMEST and its functions. Without the ProMEST, there is no coordination of data, resulting in the lack of collaboration in the dissemination of information among stakeholders and a database of HIV prevention information for the province. There should be no issues as barriers to the activation of ProMEST, given that there are only a handful of HIV prevention organisations in the province and that training for ProMEST has already been conducted. However, this has taken a very long time due to changes in management over misconduct[42] in the PAC office.

The study results show that current activities, such as information awareness on HIV and STI, VCT and condom distribution, take up more time and priority when compared to measuring outcomes of interventions. These activities are in themselves a barrier to conducting evaluations. Organisations were keen to see many people seeking their services but did not have strategic plans in place to observe long-term goals of behaviour change among their intervention audiences. Other issues were considered as priority issues. Thus, for some organisations, staff development was considered to have a greater priority when compared to measuring project outcomes, as stated by Solomon.

> *The more we continue we are beginning to identify that we need specialisation; which is becoming an area of priority for us. We need staff who are specialised in specific areas. So we need those specialised people on the ground and that is a gap that is getting wider as we go along. But we are multi-skilling our staff and that has been the result of the several staff capacity building initiatives that we have been running this year. So my plans are to get the management up, then try getting two staff a year, enrolling them into specialist training. We need to up-skill first, then we can think of evaluation.* (Solomon, male, in-depth interview)

The insufficient capacity in PNG to monitor and evaluate the effectiveness of the national response was identified in the National Strategic Plan 2006–2010.(6) As a result, the M&E framework was developed in order to improve data collection, reporting and dissemination of findings, for use in the further prevention of the spread of HIV in the country. In the Northern Province, very little has been done to implement the M&E framework. In addition, what has been implemented, such as the ProMEST training, the funding allocated to ProMEST, the composition of the team, and the meetings conducted, has not been thoroughly reviewed. The delay in establishing the required data processing systems is a barrier to facilitating assessments of program outcomes in the province.

[42] The misconduct was a misappropriation of funds.

Although some effort has been taken to partially implement the national M&E framework, only output indicators are being observed at this stage. Patrick described what has been done in his organisation so far, to implement the national M&E framework.

> *Our M&E system wasn't really in place until this national HIV and AIDS strategic plan which we are following; now we are putting together all our M&E framework together and working towards achieving the national and provincial indicators that the government requires or wants us to get. And I see that now we are putting ourselves into place where we are able to report and do evaluations. In the meantime, we are only doing monitoring. Evaluation might come later. Because with the NHS M&E framework we see that the government or the national HIV and AIDS strategy is encouraging more research to be done, so that we can work on an evidence base.* (Patrick, FGD male group)

Finally, the lack of commitment from management to encourage evaluation can be a challenge in conducting evaluations among a few organisations. A typical feeling shared by the informants is expressed by Elizabeth.

> *Although I personally feel very strongly that our interventions needs to be evaluated and that evaluation and monitoring should have a component within our organisation's structure, our director is reluctant to support this idea because it's perhaps felt that evaluators will check our performances and review our contracts. But my concern is that I need to know if there is any value in the work I have produced over the years.* (Elizabeth, female, KII)

Despite the barriers, there are facilitators who can potentially drive M&E, and especially program evaluation, in the province. Firstly, head offices and financial donors of NGOs and FBOs have directed their provincial branches to change target groups by moving away from population-based interventions to specific target groups. For example, in Northern Province, organisation 7 had conducted interventions with the general population since 2005. In 2011, organisation 7 was directed to change its strategy, as current national surveillance trends indicated a low HIV prevalence in the general population. The national prevalence in 2010 was 0.9%.(56) Likewise, organisations 8, 9 and 10 conducted HIV and STI preventive interventions among specific target groups in the province. It is feasible to measure behaviour change among specific target groups rather than among the general population. Informants mentioned that it was easier for them to understand behaviour change when interventions were targeted at specific sub-population groups; as stated by Ray.

> *It's only now that we can say we might be able to see behaviour change after we have scaled down to working with specific high risk communities only. For the past seven years or so, we would conduct training with communities all over the province and we did not follow up and never knew whether we were achieving results or not.* (Ray, male, KII)

Secondly, research collaborations and partnerships with development partners such as ADB, PASHIP and the national government agencies such as NDoH and NACS, are evident in the province and are possible facilitators to drive future evaluations in the province by utilising technical assistance that can be offered by the working partnerships created. The organisations in the province have shown positive attitudes towards evaluation despite the lack of technical capacity. They have expressed the need for programs to be evaluated and outcomes to be assessed and monitored over time.

One of the factors that could drive capacity building in M&E is the NHS[43], a national guideline which sets the standards and procedures that all implementing organisations could adhere to. As found in the study, most organisations in the province use the current NHS (91) to implement their activities such as peer education training and VCT. Ray explained the use of NHS in his organisation.

> *Upon that I think in 2005 to 2010, we've been working using the NHS that has been given to all the HIV prevention projects spearheading prevention in HIV and AIDS. This NHS focused on general population that was 2005–2010 and so upon that maybe people must have sat down and reviewed it and realised that it wasn't very effective. And so National AIDS Council must have sat back and wrote up this NHS which is more focused on target area and target group. So upon that we have worked through this one; since it has been drafted and given to us we have tried this approach in working with targeted groups. In the NHS we have eight priority areas but that has been cut down to three priority areas. The three priority areas in the NHS we are working on now are: prevention, we have CNCS which stands for care & counselling and support as the second priority area, and the last one is systems strengthening. So, based on that, we tried it out and it worked since it's targeted on certain areas and certain groups. We saw a combination of team work, people coming together through an integrated program, and we see that the outcomes are easier to achieve and understand how we achieved them.* (Ray, male, FGD male group)

There is no obligation to stringently follow the M&E framework (19), as stated in the objectives: 'this framework should not be used as a step-by-step guideline for

[43] National HIV and AIDS Strategy Plan.

developing programs and project-level M&E plans' (page 8), but the M&E framework is a good guide to start planning and implementing capacity building in M&E. The M&E framework outlines the data flow in the country, the national indicators, and other essential information required to strengthen M&E systems in the country. Knowing what needs are addressed in the national M&E framework, one organisation in the province had already started building its staff capacity in M&E in 2009-2010. Albert shared his experience of an M&E training he attended where the national M&E framework was explained. The training was conducted by the M&E Manager of the organisation that Albert works for.

> *From the training, I found out that the logical framework is a useful tool. A tool that is very easy to use. And in terms of M&E, it's good to do follow-up and monitoring. The activities and outcomes, it's all in the M&E framework. As the program rolls out we will identify our inputs and outcomes and everything is all in the program logic. This training was the first of its kind.* (Albert, male, KII)

Thirdly, there are positive attitudes expressed by the organisations to build M&E capacity in HIV and STI prevention programs, as discussed earlier. Informants expressed the need for research data as a basis for effective and sustainable interventions. The need for research data and useful indicators could drive the demand for building M&E capacity as discussed by Jacob.

> *The social mapping indicates where the high risk areas are, what age group and what activities are high risk and all that data is contained in the social mapping; but that was about five or six years ago but now that information could be out-dated too so we need to review the situation in the province. I think your research is going to provide us something to work with. I am one person who wants to encourage research. We can't just create plans from our own thoughts. We have to have evidence. We can't plan on assumptions and predictions. I don't like that. I want to have something to work with. Like we want to have clinic, where is our evidence base to work from? We have to have baseline indicators that show that we are doing this because this indicator says that this is not reducing. Those indicators are not there, so if they are not there then how can we do our planning? All the planning will come out from the indicators so that's why we need data. Other provinces, they have their data available, they have their indicators. For example, Western Highlands, the province that has one of the highest HIV infections. It's because all their systems for data collection are working, that's why they have good data to capture this information. They have high prevalence and are getting attention for intervention programs but here we think we are okay. Those indicators will tell us whether we are doing okay or not. Are we doing more or doing less? And how are we going to address it*

*[the problems on HIV infection spreading]? We can't do that because we don't have that information*. (Jacob, male, in-depth interview)

The change from population-based intervention to targeted interventions provides organisations with the opportunity to focus prevention activities on specific audiences, making the process of M&E more feasible and behaviour change easier to track over time. The change to targeted interventions could enable the demand for capacity building in data collection and information processing. This study found that after a change in the intervention strategy, staff of organisations were able to better understand the concept of behaviour change among their intervention groups. It was common for respondents to state that they began to understand behaviour change after interventions were changed from working with the general population to targeted groups, as stated by Ray.

*It's only now that we can say we might be able to see behaviour change. For the past seven years or so we would conduct training after training with communities all over the province and we did not follow up and never knew whether we were achieving results or not. Even after one follow-up, nothing has been done.* (Ray, male, in-depth interview)

## 5.3. Local Behaviour Change Theories

One of my research objectives was to explore if there were any local health behaviour change models that were known to, implicitly or explicitly, be used by staff of the interventions. I wanted to explore whether staff had a theoretical basis to their work because the evidence of current health behaviour change theories were presumed to support these interventions.

It was difficult to establish additional indigenous behaviour change theories among the implementers of the HIV intervention projects. A scenario (Singa's story described in chapter 3) of an unsafe sexual practice was used to draw out information of any health behaviour change theories that were in operation, but informants continued to mention what they were told about behaviour change by those in higher offices or higher positions. Here are responses received from four different organisations on how they would respond to the scenario.

*Well, if I was conducting the awareness, I would emphasise the information about the danger of having several sexual partners at the same time. I would say that it is risky and that people who practice such behaviour are at risk of getting HIV because they do not know their*

*partners well enough. I would speak generally to the audience that if people felt that this was them, they should use condoms or stick to one sexual partner they know*. (Maureen, female, scenario)

*If I knew Singa personally, I would invite him to come to our organisation for testing and counselling. I would try to meet him and accompany him to our VCT staff and leave him with them. Otherwise, it's hard to tell who does what in their private lives, so if I was talking in a public awareness campaign, I would talk about the prevention strategies, the ABC concept of abstinence, be faithful and use condoms every time with casual partners.* (Philip, male, scenario)

*Yes, that is a typical story we hear every election time. Men going on campaign trails and meeting women. Some even develop long term sexual relationships. That is why our organisation conducts separate activities just for the election months because that is a season when people; mainly men leave their villages and travel in groups to campaign for their political candidate. We conduct awareness to remind people to protect themselves from getting HIV; especially when they are away from their wives there is always temptation to sleep around with other women.* (Veronica, female, scenario)

*There is only one method of protection for people like Singa; and that it by using condoms. So our message for such people is mainly on condoms. That is why we teach people the skills to use condoms. We can only provide the information and teach them the skills through condom demonstration. It's really up to them to change their risky behaviours* (Clyde, male, scenario)

I attended two of the HIV awareness campaigns in my own village as a non-participant observer. Public talks were held in a church and outside the church under a tree. The community was invited to attend through an announcement during Sunday church service. The HIV prevention campaigns were a joint operation between one of the NGOs and the provincial electoral office. Therefore, there were two awareness campaigns conducted simultaneously. The group from the NGO spoke about HIV and AIDS prior to the election talks given by the staff of the electoral office. The talks regarding the elections were about how people were expected to vote, as many rural people in PNG are illiterate. Awareness talks were conducted to explain pictorial instructions on the ballot papers. The talks on HIV prevention were general and not targeted at any particular group. The message was about the increased level of mobility during the election period; and that people should be prepared to carry condoms and use them at all times if they had sexual intercourse with anyone who was not a regular partner. The message consisted of prevention measures to avoid the acquisition of HIV. The analysis from my observations showed similarities with

the responses from the scenario interviews. It was difficult to identify a theory of behaviour change during the election period.

Although scientific models of behaviour change, such as social cognitive theory and cognitive behavioural theory, were in operation, the study showed that the exact names of the scientific behaviour change theories and models were not known, but implementation activities which were based upon these theories were understood. Most responses were parroted processes of what was expected and how intervention activities were conducted. Furthermore, the study found that the behaviour change theory of *social cognitive theory* was one of the two main behaviour change theories in use in the province. Social cognitive theory, also known as social learning theory, posits that individuals learn behaviours from one another through observation, imitation, and modelling (Table 3). The theory assumes that if an individual was motivated to learn a particular behaviour, then that particular behaviour would be learned through observations. By imitating these observed actions, the individual observer would solidify that learned action. People learn by observing others. These three factors interact together to affect self-efficacy by either encouraging or discouraging the performance of a particular behaviour.(30) For example, a person who watches and listens to a community awareness that encourages HIV testing may model the observed behaviour, because they are attentive, motivated and able to replicate the observed behaviour. By getting tested, this person influences the environment by making HIV testing more noticeable, or by influencing others to model this behaviour.

Self-efficacy is a key concept of social cognitive behaviour.(181) Self-efficacy refers to one's confidence in the ability to take action and persist in action. The quotation below indicates the transfer of skills to sex workers on how to use condoms in the correct way. When asked what behaviour change was targeted for female sex workers, consistent and correct condom use was the response provided.

> *We try to get them to practice safe sex and that is to use condoms all the time. For our case we are not working to stop them from selling sex because for most of them it's their livelihood and we have no other way to sustain them financially, so we do what we can to keep them healthy and alive by talking to them about protecting themselves from HIV. There's been a lot of change, especially for the FSW (female sex workers): previously they used to collect male condoms for their male clients. After having all these educational awareness on female condoms, they started to use the female condoms. Every time they call and we crack jokes with them, ask them if they need more condoms, and they tell*

> *us that they use the female condoms. There are times during the interpersonal communications where we go through with them, the methods of wearing a female condom properly and they demonstrate the correct use back to us and that's how we are able to assess if they understood what we have taught them. If they get it wrong, then that is our opportunity to correct them while they are still in our presence. So there's been a lot of improvement in that area, especially with safe sex. So yes, what we are able to do is teach them the skills in using both male and female condoms correctly.* (Ryan, male, KII)

Social cognitive theory was also used in all other programs that conducted HIV education interventions in high risk locations[44] and among most at-risk groups.[45] Organisations aimed to change behaviour among their target audiences by providing knowledge on correct use of condoms, where to access condoms, and by making condoms available. These activities promoted self-efficacy by making the product (condoms) available and by teaching how the product is used. The distribution of free condoms was an activity carried out by most organisations in the province. The non-government organisations spoke about demonstrating condoms and getting project clients to utilise health facilities for HIV screening, and STI checks and treatment.

> *When all the presentations are over, the condom talk and demonstration comes last. When someone understands the condom demonstration well, he is able to practice what he has learned. Besides, he is not ashamed of getting condoms; he will use them more often. If the presentations and awareness is also lively and interesting and clear for people to understand, it makes them want to come and use the VCT and STI services we provide. If they test positive for HIV, they are already told about how to use condoms. So they return to us without any hesitation and get it from the office or from the peer educators in their community*. (Petrus, male, FGD)

The second observed behaviour change theory underpinning interventions in the study location was the *cognitive behavioural theory*. This theory suggests that reasoning plays an important role in behaviour change. Health interventions that use cognitive behavioural theory seek to change a person's irrational thinking and behaviour by educating the person and reinforcing positive experiences. By learning to alter their thinking processes, the intervention groups can think more clearly about the choices they make and the behaviours in which they engage in.(30) Cognitive behaviour theory is used in

[44] Locations where there were economic activities such as betel nut trade and frequent movement of people such as sea ports.

[45] Groups such as female sex workers and out-of-school unemployed young people.

educational interventions. For example, HIV prevention interventions conduct peer education workshops among young out-of-school persons, with the presumption that acquired knowledge of preventing HIV transmission will change the attitudes and sexual practices of young people from a practice of inconsistent condom use to using condoms consistently to avoid HIV infection.

The training components of HIV prevention organisations lean towards changing people's attitude from practising unsafe sex to safer sexual practices.

> *In the training, my aim is to change people's thinking from bad to good. That gets them to change their behaviour; for example, from having many sexual partners to only one sexual partner that does not have HIV.* (Jason, male, in-depth interview)

Others in the study mentioned that having the STI prevention services available and on location where awareness and training was carried out, helped to change health seeking behaviours such as the treatment of STIs. It was stated that people did not come to the STI clinics, therefore the STI and VCT services had to be taken to the community. As described by Ray;

> *We try to stop them from spreading STIs and get treatment. That's why having the service available on the spot makes them get treatment and that's behaviour change. So what we do is we conduct awareness and bring the VCT service into the community at the same time. After they receive the message, they decide on whether to get treatment for STI and VCT service. They volunteer, we don't force them. Behaviour change has to be something they choose to do. Mipla bai nonap fosim ol (We will not force them).* (Ray, male, KII)

The main mode of HIV intervention used by community-based organisations in the study location was education. Out of the nine organisations, seven organisations conducted HIV awareness using different methods such as peer education training, one-to-one counselling, public awareness, theatre through drama and role plays, video shows, announcements through the local radio station, and the distribution of brochures and pamphlets. Out of these seven organisations, four were NGOs, one government agency, and two were clinic facilities.

> *With the FSWs (female sex workers) we've been doing a lot of educational programs with them ... getting them to be motivated before we go ahead to do HIV testing for them.* (Ryan, male, KII, NGO1)

*Our activities involve workshops on giving information to private company employees on HIV and STI prevention. We provide information packs, including condom information and information on how to seek treatment for STI and HIV tests.* (Elizabeth, female, KII, NGO2)

*I became a volunteer with the organisation just to be part of the drama group. So under the prevention component we were going out. Before it was like only drama, we go and perform drama. People who do talks on HIV and other related issues; they only go for that one. So they conducted awareness while we performed drama. Cinema or video shows too were included, so before anything started, consultation with community leaders was carried out to seek approval to show HIV-related movies in the villages. If they wanted to go into one village like we say, Hohorita in Kaiva, consultation will go on before any activity was conducted. Before it was like that so we conducted separate activities under different components ... like sometimes people who do talk on HIV and AIDS and other related issues, they go out, people doing cinema go do cinema, condom go out and do condom talks and demonstrations. That's how we carried out the HIV prevention work in this organisation.* (Maisy, female, FGD, NGO3)

Behaviour change to achieve actual health results was misconceived by many study participants. According to some study participants, behaviour change was perceived as an instant change that could be witnessed soon after a presentation or training. In addition, these behaviour changes were often unrelated to HIV prevention but to other issues such as domestic violence.

*In the training we also see immediate behaviour change. Like, for instance, it's a living testimony. When we went to Kokoda I went to conduct the training there with my colleague. Within the training in the second week, when we talked about gender and family violence and after that during the graduation, we could see someone who is also a big guy up there and is also a senior tour guide for one of the tracking companies there. We didn't know that he had a problem there when he came for the two weeks training. He had a problem with the wife and gender-based violence in the family, argument, he and the wife separated for three months and without knowing that we went to conduct the training. He was in the training as well and on the graduation day the wife cooked something for the husband after leaving her for three months and going away with the children. So after three months leaving the husband, she cooked something and brought it for the husband and I was overjoyed to see in the eyes of everybody the husband and the wife hugging and saying sorry and coming into reconciliation. That's a evidence-based response from people in the training.* (Ray, male, FGD)

While theories such as social cognitive theory and cognitive behavioural theory may have been the basis for the interventions implemented, these theories were designed by head offices, NACS or consultants and were unknown to the study participants. An effort to further investigate the existence of local theories showed that there were uncertainties and that study participants were only able to describe the routine processes of trying to achieve evidence-based health interventions. Case studies were used in interviews to draw out any local theories of behaviour change. The quotation hereafter is a typical answer that was received whenever questions around behaviour change theory were queried. Respondents to the interviews often gave answers that were descriptive of the process but did not state the underlying cause of how the prevention activity will change behaviour; in this case, by using cognitive behavioural theory to change the thinking or attitudes of people from not using condoms to using condoms. The World AIDS Day annual event was a case study used in the attempt to draw out indigenous theories of behaviour change.

> ML*: I understand your organisation conducts one-off HIV and STI prevention activities on special days and events such as days like the World AIDS Day and the national elections that come about every five years. How do you as an organisation in the province think behaviour change will occur through a public awareness at the Independence oval during the World AIDS Day?*
>
> Rose: *During World AIDS Day, plenty people turn up at the public awareness and ask questions. After giving the basic information on HIV and STI transmission, symptoms, prevention, testing and care for those living with the virus, people are given the opportunity to ask questions.*
>
> ML*: Ok, so how is the one day awareness going to change sexual behaviour?*
>
> Rose*: People can get condoms and use them, and they also learn about HIV from the information given and they can prevent themselves from getting the disease.* (Rosa, female, FGD)

There was a particular component in one organisation that showed a 'local' theory. This local theory related to self-respect and taking responsibility for self and the family. This theory is based on the religious teachings of respect, care and acceptance for fellow human beings rather than a theory for health seeking behaviour. The local theory was understood well by the implementers, and as such the implementers were able to translate this theory into their HIV prevention activities. Responses from interview probes showed that in pre and post-test counselling, the counsellors emphasised the issue of responsibility

to the clients. Study participants mentioned that giving back responsibility to their clients would make people change their risky sexual behaviours. Thus it was a 'religious theory' applied to a health behaviour change intervention.

> *We also make them take the responsibility to bring their partners for STI treatment and HIV test. So they have to take the responsibility to change their behaviour. We don't go out and look for their partners, no. We have to make them be responsible for their own partners. They are to disclose their status to their partners and to invite their sexual partners to get treatment if they have STIs. So they become responsible for their own risk behaviours in order for them to change.* (Jayden, male FGD)

> *The trend of transmission, the network in which the virus is spreading, it's like a spider web and they themselves understand the trend of transmission. How fast it goes and everywhere and to track it down, it's very hard so they begin to know themselves the risk they are involved in. So it helps them to think about changing their behaviour once they take up the responsibility.* (Albert, male, KII)

> *It's the responsibility that makes them change their behaviour. They got involved in that behaviour. It's their right to have sex but rights come with responsibility. The main thing is that we make them take responsibility for their own actions by bringing their partners for HIV test. Apart from the information we give them, the process they go through such as counselling and getting treatment makes them change their behaviour.* (Rosa, female, FGD)

The results show that there were multi-level HIV interventions occurring in the study location and thus there is a possibility of different theories operating at different components of program activities which remain unknown to the individuals who implement the activities. For example, a case study was used during phase two of the study in which in-depth interviews were conducted during the national elections to draw out local theories for condom use. Several HIV awareness campaigns were conducted prior to the national elections by NGOs in the province. This study investigated the anticipated behaviour change during the two month (June–July 2012) election period. A series of in-depth interviews were conducted and responses indicated two theories at play: the cognitive behavioural theory and the 'responsibility' theory.

> *It's our job to provide awareness, information on HIV. We do what we can. It's people's own responsibility to change, because they know themselves. We do not know about their sexual lives. However, our responsibility is to provide information for them to listen, think and take action to improve their own lives. If they are faithful to one sexual*

*partner, that's good. But again, we never know when this behaviour will change, so we just have to warn them in advance. But it's really their decision. We have no right to force them to use condoms. We just tell them condoms are available for protection. All we can do is just keep reminding them that AIDS is here in PNG and anyone can get it if they have sex with someone who already has HIV.* (Jimmy, male, in-depth interview)

*The main reason for conducting this awareness campaign during the elections is because this is a time when people move around and some people come into town from very rural areas where we have not gone to. So we educate them through public awareness. Many people in the public are not in our target groups, so that means we may not have got to their communities to provide information on HIV and AIDS. So this is an opportunity to reach them. Many of them may be practicing safe sex but we never know. We just have to conduct the awareness. It's important to promote health this way, through education. If they do not know, how will they do the right thing?* (Wilma, female, in-depth interview)

This study also elicited information on the types of evaluation training conducted, to find out if staff of organisations were taught about behaviour change theories. However, the results indicate that the contents of the evaluation training conducted so far were based on the data process. The results are presented in the next section (5.4).

## 5.4. Capacity Building in Training, Resources and Individual Motivation

Training relating to monitoring and evaluation may have occurred at some point in the lifetime of the nine organisations that participated in the study, but changes in M&E staff and management staff and unavailable records of training materials made it difficult to gather reliable information to conduct content analysis.

Monitoring and evaluation training has occurred in certain organisations but quite late in the HIV interventions. Training was mentioned by two organisations in the study. A non-government organisation provided training for its staff on data collection, compilation and the production of reports. The organisation had started operations in the Northern Province in 2005 but received only two all-staff M&E trainings in June 2010 and January 2011. The training sessions were conducted for five full working days (8 am to 4 pm), from Monday to Friday. The first training was conducted by country-based M&E staff from the organisation's head office in another province. The quotation below is from the trainer from the organisation's head office.

> *What we've been trying to do within [organisation named] and I guess the KAP (Knowledge, Attitude and Practice) forms is ... the best example is actually giving the staff the ability to ... not to do research but giving the staff the ability to find out about their own programs and feed it back at that level. So there's a whole lot of information that comes up to the M&E unit that my M&E officer and I try to analyse, but we've been so busy trying to get the systems in place and getting the data flow and getting the quality data that we haven't been really able to do a lot of analysis but we are hoping this month (June 2010) will be actually the first time we get an analysis back out to the branches on their data. But the plan is that at the level the data is given to us we will do some comparisons between branches and some level of analysis to feed that back in to their programs. What we've been also trying to do is increase their awareness at the branch level of the type of analysis they can do on their own data. So, for example, the people running training, when they get all their feedback forms, we encourage them to look at things like, is there a difference between what men and women say on the feedback forms or what older people say and what younger people say on the feedback forms? Trying to get them to think of the bigger picture of their activities and what was the outcome that they wanted to achieve. And how will they know if that outcome would have been achieved and if they measured that. So in terms of monitoring and evaluating programs and the forms that we've developed, is to try to help them link the data that they are collecting with, how effective has their program been, do they need to improve it, what's going to work and that sort of stuff.* (Molly, female, KII)

The second training was conducted by an international trainer invited by the organisation to train staff on qualitative data collection tools such as the 'Most Significant Change (MSC) Technique'. MSC is an M&E tool used to gather significant stories about the impact of the programs from users.(182) This is the first and only MSC training conducted in the province by one organisation only. By the third phase of this study, MSC was conducted only once. MSC was used to gather information about people's attitudes towards stigma after a stigma and discrimination peer education training was conducted in three communities. Results of the MSC showed an increased sympathy and care for people living with HIV and AIDS.

Other study participants from the same NGO mentioned the different data collection tools used to collect quantitative data for monitoring purposes. There was evidence of good M&E support and training, but the training was provided late in the interventions, as funding for the NGO ceased a couple of years later. Training was also provided on an ad-hoc basis. There was no consistency, follow-up or reviews of the impact of the M&E training on the level of skills. Staff who attended the M&E training found it

informative but stated that there were inconsistencies in following up on the training, and also methods learned were not utilised after the training. The citation below is from a participant from the same NGO who attended both M&E trainings.

> ML*: How did the M&E training go? Can you describe the two training sessions please?*
>
> Albert*: I found out that the logical framework is a very useful tool. A tool that is easy to use. And in terms of M&E, it's good to do follow-up and monitoring. The activities and outcomes, it's all in the framework. As the program rolls out we will identify our inputs and outcomes and everything is all in the program logic. This training was the first of its kind. The outgoing M&E manager was quite sad that she wasn't able to run this training earlier until it came for the time for her to leave. She waited on the trainer and the trainer kept postponing her arrival in PNG so that delayed the timing of the training.*
>
> *We were trained on data collection methods such as most significant change (MSC) but we didn't have time to go out to the communities and try MSC out. The trainer had to rush through the topics in one week. In the training, we had chances to collect stories and how to write up stories, the aim of collecting the stories, why we collect the stories which were something we never thought of or we never knew. And every time I was wondering, like us implementing these programs and, for example, like this community conversations activity – while I was running that program, I was wondering how are we going to gather information or get our outcomes on the significant changes that are the communities' experiences? But then when we came into this training, collecting and story telling part is where I saw it would come in for M&E purposes. So it was one of those tools that we learned. There are certain skills I learned in there that I could use for counselling with whatever methods I already have.*
>
> ML*: Have you started using the new data collection tools you learned from the training?*
>
> Albert*: That's what I was complaining about: that we learn these methods and we don't put them into action. I expected to see something better but, after our implementation of the community conversations activity, you know we might be asked to conduct the MSC. Especially on how this program [community conversations] has being rolled out and what impacts it has made in the communities.* (Albert, male, KII)

Both M&E trainings were conducted at times when I was not in the study location. Therefore, participant observations could not be conducted. A couple of months after the MSC training was conducted, the third round of data collection took place and, during this

period, one MSC story was collected.[46] The MSC story was collected to add substance to quantitative data to substantiate that peer education carried out on the topic of AIDS stigma was working, and that the targeted communities were changing their attitudes towards people living with HIV. From the quotation below, the study participant emphasises the significance of the various tools, such as storytelling, used in the community conversations (CC) method of conducting HIV prevention. In this quotation, it seems the purpose for MSC stories as an M&E tool is either confused with the story telling tool used in CC or that it is used to 'review' the story telling tool used in CC. As in a proper MSC story data collection exercise, several stories are collected, not just one story.(182) However, story-telling is valuable in the PNG context as information is commonly transferred through verbal communication. As such, story-telling can contribute valuable data to the processes in the evaluation of HIV prevention programs in PNG. But the lack of clarity in the implementation of MSC stories and CC meant that data collected was not analysed locally.

Out of the nine organisations that conduct HIV prevention programs in the province, only one NGO was trained in MSC, but the MSC tools were never tried out as part of the data collection tools in their entire HIV intervention. Only one staff tried to use the tool, which he used to collect only one MSC story. His account is mentioned below.

> *I returned to X [name of village] to collect some most significant change stories and there was a woman who was touched by Elizabeth's story, so she gave me a MSC story. Elizabeth's story is a story we use in community conversations to get people to discuss about stigma. Elizabeth is someone who has HIV and had been stigmatised and discriminated in the community.*
>
> *This woman took Elizabeth's story and wanted to try it out herself. She tried it and it worked. So when I went down to X, she told me the story. She told me that there was a woman in their community who had HIV. When she got sick, people in the community never visited her. They talked to her but did not sit next to her or come to her house. Her mother was the only person who took care of her. So this woman telling me the story started to bring food and firewood to this sick woman's house. She would go and talk to her, sit with her, eat with her and this started to change the attitude of people in the community. Because of what she did, people started to accept the woman living with HIV and came and visited her, ate together with her, shook her hands, and hugged her. She died after three weeks. So the woman telling me the story used the CC tool to change her own attitudes towards a PLWHA and made others also change their attitude and behaviour, because they saw what she did. So I*

[46] Only case known to me but there may be other MSC stories collected that I was not aware of.

*got that story and gave it to the boss and he sent it to Moresby as part of our quarterly report. So like what I'm saying, story telling in CC as a tool is very useful. We use that as examples to try to decrease stigma and discrimination. The testimony and experience of others which we use helps others to change. So story telling is one of those exercises we use in CC that actually changes behaviour*. (Jimmy, male, KII)

As only one person tried the MSC technique and only one story was collected, not enough feedback was received to verify how useful the MSC tool was. I probed for any theory of health behaviour change that came out from the analysis of the only story collected and the response received was that there was a change of attitude towards stigma and discrimination because of the information given during community conversations. I followed up a few months later and I was informed that it was not used again as program strategies had changed. Community conversations were no longer in use after the third phase of my study.

M&E training ceased after the M&E manager left the organisation. There were one-off workshops in M&E after the National HIV and AIDS Strategic M&E framework was implemented, but these workshops were conducted in other parts of the country and were often targeted at management level. Managers were then expected to re-train program staff which, in most cases, did not eventuate. M&E up-skilling was an activity overshadowed by other more pressing daily issues such as training of peer education volunteers, report writing and developing M&E systems within the organisation.

While HIV and STI prevention programs were expected to produce evidence-based outcomes, most staff involved in the implementation of the activities were not sure how to achieve evidence-based results through program evaluation.

*At our meeting in Lae a week ago, our financial donors talked about evidence-based outcomes and they are putting pressure on us to deliver evidence-based outcomes, but we are not sure how they expect us to achieve what they want.* (Patrick, male, FGD)

In some instances, donor agencies had expectations of certain outcome indicators to be attained by the organisations, but staff at the implementation level did not fully understand how to accomplish the expectations. The findings of the study indicated that the staff were introduced to a logical M&E framework for the HIV and STI interventions, but were not provided training to understand how the outcome indicators could be achieved.

During a follow-up meeting, I sat in the meeting to observe the discussions, as the purpose of the meeting was to find out if all staff at the implementation level understood the logical framework. The feedback from many of the staff showed that they could not associate the logical framework with a long-term behaviour change among the intervention audiences. The staff were only able to work from year-to-year, following annual work plans. The vision of the overall program was not reinforced enough for staff to perceive long-term outcomes of the interventions. Follow up face-to-face interviews to confirm this showed that various components of the organisation were guided by annual work plans. The work plans achieved short-term indicators, mainly output indicators. When probed about long-term indicators (outcomes), most study participants mentioned that they needed technical assistance through training to understand how they could reach program outcomes which were evidence-based.

> *We work mainly from our quarterly work plans and work towards meeting annual targets. So we look at things like increasing condom distribution and peer education. I still have to understand the program log frame. I think we need more technical assistance in that area.* (Kaleb, male, in-depth interview)

The findings of the study showed that resources such as time, funding, and logistics to support evaluation of HIV and AIDS programs were in short supply. Building local capacity to evaluate HIV and AIDS intervention was not effectively developed through the provision of resources, and supervision. Most of the funding and resources were allocated to the running costs of activities, not to measuring the effectiveness of the interventions.

> *We try to make adjustments from annual feedback of our activities. For example, if people have tested three months ago for HIV and have not returned after three months, because of the window period, we need to try to get these people back for re-testing. So the information comes up from our quarterly report. From that feedback we plan for logistics like hiring trucks to go and bring people to organisation 7 for re-testing. From previous reports, we plan for things like phone bills, budgeted activities, admin costs. We can plan for how much digicel flex we need to call people for follow-up for HIV tests and STI treatment. Or we bring a vehicle to their villages to bring them in for checks.* (Jayden, male, FGD)

Most organisations' M&E component was budgeted for activities at the national-based offices where M&E programs were designed and managed. M&E work in the

province, which was mainly monitoring, had no separate budget and was grouped together with the funding for other administration activities.

The study found that there was a difference between how local organisations and international organisations built M&E capacity within their organisations. Out of the nine organisations that participated in the study, two organisations were based in Port Moresby, a local NGO and an international NGO. While the international NGO committed adequate resources and funding to research and M&E training to evaluate its interventions in the Oro Province as well as in the other parts of the country, the local NGO had nothing budgeted for M&E. I worked for the international NGO based in Port Moresby and is therefore aware of how much capacity was built into M&E in terms of training resources and funding. At the time of this study, the position of the research manager in the international organisation was vacant and therefore it was not possible to organise an interview. From my personal experiences, the international NGOs in the country invested resources, funding and technical training into their own national offices for M&E-related activities. This was not the same in local NGOs. Some of the reasons expressed for this absence of training were that evaluations were too technical to conduct and also that evaluation was an expensive exercise for which there was no budget allocation and that, although evaluation was considered important, there was no organisational will and passion to start the process.

Supervision and time allocated to the building of individual capacity and organisational capacity was scarce. Staff managing data often worked unsupervised for long periods of time and were given very limited training. Although they were supervised by their project managers, they expressed concern for the lack of supervision from an M&E supervisor and the need to be mentored by M&E senior staff.

> ML*: Did your previous M&E assistant teach you what to do before she left or how did you start when you moved into the position?*
>
> Patrick*: When I moved in, our M&E manager had to come and teach me what to do. So she came and gave me an induction on what I'm supposed to do. But I'm still learning. A lot to do, so I'm still learning.*
>
> ML*: How long did she spend with you?*
>
> Patrick*: One week, in fact four days. Just on compiling data and all this she told me what to do.* (Patrick, male, KII)
>
> *Supervision is something I need. Someone has to check and let me know if what I am doing is on track. Most times I am trying to learn by trial*

> *and error after short and fast M&E training. I like M&E work, but maybe if someone can mentor me that would be okay.* (Stephanie, female, in-depth interview)

Three areas of opportunity provided the basis for capacity building. The need for personal development facilitated the sustainability of local staff in the organisations. For example, staff of HIV interventions were provided training in topics such as counselling, public speaking, gender-based violence, and drugs and alcohol. They considered this variety of training to be personal development, because they learned new information and skills that could provide future job opportunities. The motivation that staff had to do their work was an added value to the organisation. Personal values such as the satisfaction to assist others and prevent suffering by avoiding the acquisition of HIV, kept individuals staying on as volunteers. Some were challenged by what they did and were grateful to learn new information, skills and ideas through conducting community-level interventions. For instance, several volunteers were young people in their early 20s. They stated that the community visits to remote areas of the province where there were no road links for vehicles, challenged them to appreciate the work they did. They were given the opportunity to travel to villages and communities that lacked the most basic services, such as health care and basic primary education. Just by going into those communities and sharing information on HIV and other health information, was rewarding. The skills acquired gave them a sense of responsibility and pride in what they were able to do in the communities they worked in. Some stated that support from the community and from family members was the motivating factor that kept them working in HIV prevention programs. Others stated that the organisational culture of friendship was a pull factor in the persistence to show up for work every day. The various motivations to continue working in the area of HIV prevention are reflected in the following statements:

> *Since I started working, I didn't have much knowledge and skills of HIV and AIDS-related cases apart from my general nursing skills, but as time went by I have gained a lot and built up my capacity through training and field experience; now I came to realise that being a nurse is just the foundation of my career and I can advance with potential and self-confidence to further my understanding in HIV management.* (Maria, female, FGD)

Maria built self-confidence as part of capacity building. The confidence in her own ability to perform well as a nurse encouraged her to advance her skills and knowledge.

*One thing that has had an impact in my life since I started work is when I conducted peer education training and half of the total number of the participants attended VCT on the same afternoon. It was encouraging and that motivated me to think that I can contribute effectively to HIV reduction and behaviour change through information dissemination in training.* (Patrick, male, FGD)

Patrick was motivated when he saw the results of his work. The training he received to become a peer educator trainer built his capacity to perform effectively.

*Comparing with other staff, I think I am the only one with the lowest education. It's something in my heart that sometimes makes me feel bad and down. Through God's grace and having complete trust in God, and from family support, I have made it this far. Through these crucial times and years my work has made a great impact on me personally, changing most of my behaviour from ignorance to accepting PLWH. I came to realise that I am a valuable asset to the organisation; therefore, I value my work very much. I am also one of the longest serving staff members and it's the friendships I have developed among my workmates that is special and keeps me liking what I do.* (Ray, male, FGD)

Despite his low level of formal education, Ray has overcome professional challenges through his faith. He has observed a personal impact in his own attitude from non-acceptance to the acceptance of PLWHA. Capacity has been built through the change of attitude of a staff of an organisation working in HIV prevention.

*I joined organisation 7 as a drama volunteer. I didn't like performing in public but when I got involved through role plays, I saw change in people when performing HIV information through drama. We were trained for different activities which boosted my capacity and ability and also my talent in drama. I also developed confidence as a young person. When I left school I had nothing to do but to play sports only. I didn't like the information on HIV but after I was trained, I found out who I am and what my potentials are ... and with a serving heart to care for PLWH and move on. I am happy*. (Maisy, female, FGD)

Maisy expressed happiness in the different skills she acquired. That motivated her to remain as a volunteer for several years with the organisation she worked for.

A resource that was well developed was the standardised tools for data collection for national surveillance, which was developed by the National AIDS Council and the National Department of Health (19), and which is used by all organisations that participated in this study. Based on non-participant observations, the tools enabled the staff of

organisations to understand a system of data flow and reporting, and were used as a guide for consistency in reporting. Organisation representatives were trained to use these tools in workshops organised in and out of the province.

Individuals perceived that their understanding had improved on the significance of evaluation, as surveillance information was necessary to monitor the trend of the epidemic in the Oro Province and in the country.

> *When there are changes done to the data collection forms, the M&E people in NACS Port Moresby come over to train the staff in the province. In the previous years, the managers and M&E staff went over to Port Moresby and attended the workshops. Now the M&E people come over to the province and run workshops with staff on how to fill out the forms. We know how we should go about with the forms. It's a tool that helps us understand the surveillance and reporting of the disease in the province and PNG because everyone in PNG working in HIV uses the same forms for reporting every month to NACS. So yes, support in the tools is good for us. (*Solomon, male, in-depth interview)

Although only two out of the seven[47] organisations in the province described how they made some use of information derived from their input and output monitoring data, the rest mentioned that they did not have internal systems in place for information review and onward planning using internal data.

By participating in two meetings with two organisations, I observed that whenever feedback from monthly reports came from the national data coordinating agencies[48], it was used to review intervention activities regarding their suitability for inclusion in annual plans for the following year. This provided the opportunity for some organisations to carry out evaluations on a smaller scale on specific prevention activities. For example, while some organisations used the monthly feedback for administration and management of funding and resources, others used the information for programmatic review and adjustments. My participation involved providing recommendations on how internal data could be used to improve prevention activities.

> *Other information feedback is such things as the increase of PLWHA. When we see an increase in the reports, we plan according to the numbers we have for HBC activities in the coming quarter. When we see*

[47] Nine organisations participated in the study but two organisations are Port Moresby based. The results only report findings of the Popondetta based organisations.

[48] Data from the national level provide the provincial totals. This includes data from the Organisations' head offices.

*that, we also start to plan for the use of ART and how to make referrals for ART prescriptions. We now have to plan to increase the budget for our components because of the increase in the number of PLWHA. We have babies and disabled people testing HIV positive too so we have to plan for milk and other necessities for these people with special needs.* (Rosa, female, FGD)

*So with the feedback from our ongoing activity reports, our activities change and expand. Some people are saying we should be focused on certain areas of HIV prevention only. But there are other entry points such as parent to child transmission, and it's hard to just ignore the needs of people so we find ourselves working with orphans, parent to child transmission and doing other things we never intended to do. When they come in here and we know that if we refer them and the other service providers will not attend to them, they come back to us so we get out of the box now.* (Jayden, male, FGD)

This study shows that M&E capacity building in training, resources and individual motivation were weak but could be strengthened through training and mentoring. The next section (5.5) presents the results relating to individual skills and experiences in M&E.

## 5.5. Capacity Building in Skills and Experiences in Evaluation

Data gathered through observations, key informant interviews and in-depth interviews, found minimum M&E skills and experience. The skills involved mainly the compilation of data, tallying quantitative data and transferring end of the month data to report templates. The reporting templates were developed at the organisations' head offices or at the national level. This meant that the staff that worked in M&E over five years, continued to do routine tasks for several years. The clinical data are compiled and sent to the Provincial Health Office to be summarised as provincial data, which is then sent to the National Department of Health in Port Moresby. In some instances, there were missed opportunities to up-skill HIV prevention implementers in research and M&E. For example, one organisation had analysed its input and output monitoring data to observe trends over time in activities such as condom distribution, types of training provided, types of target groups reached, and so on. But these analyses were conducted in Port Moresby at the organisation's head office and did not involve provincial staff. Similarly, another organisation conducted its baseline research in the province but the local provincial staff were not part of the research team. The baseline research was conducted when the local staff were not available in the province. Furthermore, a couple of staff trained by the NDoH

and the NACS on M&E had left for other jobs unrelated to HIV prevention or were terminated from work.

> *Prior to setting up this ProMEST, we had already built capacity by training people in data management and M&E. We trained someone from the PAC to coordinate the ProMEST, but along the way he wokim sampla liklik samtin so mipla rausim em (he did some little things that made us remove him [from work]). I do not know whether to bring him back or not. On the other hand, we removed him for the abuse of funds but taim mipla rausim em, mipla rausim em wantaim displa skills mipla bin lainim em (when we removed him, we removed him with the skills we had taught him). (*Jacob, male, in-depth interview)

Some research skills have been acquired on an ad hoc basis by some informants. A few study participants reported that they were part of research teams in previous studies conducted in the province by outside researchers. These studies were survey-type research that contained structured questionnaires. The individuals were recruited for data collection and were taught interview skills in quantitative data collection. These research experiences were very brief and took place irregularly. Despite the lack of skills and experience, interest was shown in learning M&E skills.

Patrick worked in another component of HIV prevention. He was interested in M&E and hence applied for an M&E position and was appointed. He was learning on the job without previous experience when this study was conducted.

> ML*: Did you have any former training or experience in monitoring and evaluation before taking the job?*
>
> Patrick*: No.*
>
> ML*: You just took the job then?*
>
> Patrick*: Yes. But I was interested so I wanted to apply and come in. Partly because … I was already doing part of that [M&E work]. I was previously attached to the training component of the project. With training after training, we added up how many people have attended the training and we also do follow-up, so it was in line with what I do but this is specifically targeting on data and figures so, you know, I think I'll give it a try. And I was interested so I had to apply*. (Patrick, male, KII)

Although most respondents mentioned that M&E skills were limited, one study participant was sure that if given the opportunity and technical assistance, the organisation he worked for could conduct its own evaluation to measure its outcome indicators. The

study participant felt that there had been enough capacity to build within the organisation to carry out such a task.

> *From my own perception, from previous up to current times, we have been doing a lot of capacity building and systems strengthening and even write up such as reports. And now that we are doing planning and management, HBC (home-base-care) skills and naturally from seeing how these people contribute … they will definitely carry out a good job, because some of them got involved in certain organisations that have come in and they've come here to do their research and other projects. Staff in the organisation got themselves involved in those research projects. At least they have a fair idea and experience and, you know, the nature of work and how it is carried out. We will still carry it out because we have some guys in the system with the experience and skills and when we combine it, we will still carry out the evaluation.* (Chris, male, KII)

There was management support for evaluation in the organisation Chris worked for. Therefore, there was a higher level of evaluation capacity. There was support in training both outside and within the province. There was additional research support where staff were encouraged to participate as data collectors in collaborative research projects with development partners. As such, the staff of this organisation felt confident of conducting the evaluation for their health intervention programs.

During observations conducted over the three phases, it was noted that information collated from input and output monitoring was mostly used for reporting purposes. Most study participants described the process in which information was collected, compiled and presented to a higher authority. Eight out of the nine organisations who participated in the study indicated that the data was gathered for monthly reports to be sent to the head offices of NGOs, NAC, PAC, and the PHO. The process of input and output monitoring was mostly seen as an obligation to meet the requirements of the National HIV and AIDS Strategic Plan (NHS). This indicates that organisations are basically implementing what they are told to do, without paying much thought to other potential use of the primary data they have at hand. This perhaps suggests that CBOs in the study area felt disempowered as they lacked basic knowledge and evaluation capacities. Data from interviews indicated that staff followed instructions and did not initiate or suggest innovative changes. As described by Stephanie:

> *All the information must go to PAC. We are also supposed to provide a copy of our monthly reports to the PHO [Provincial Health Office] but we didn't do that in the last two months because I didn't know since I've*

> *only been in the position for a few months. Last time I was looking through the new NHS [National HIV and AIDS Strategic plan] and I was looking at the new M&E framework and I realised. And later my boss told me that we also needed to submit copies of our reports to PHO which I didn't know that the previous M&E assistant was doing that. She left without telling me what to do, so the organisation's boss here had to tell me where reports go and to who they should be sent to. And from the new M&E framework from the new NHS I realised that we were supposed to do that and we photocopied the [appropriate] forms because that's part of the reporting we had to do so we photocopied some. I'll give it to the person in charge in the province's health office. So the other data [not VCT] goes to PHO, then to NDoH and NACS M&E branch.* (Stephanie, female, KII)

As in Stephanie's case, M&E staff tend to learn on the job. She did not have the basic knowledge on where to start or how the data process flowed. She learned on the job as she put together her first monthly data. This indicates a lack of basic knowledge on the flow of information between her organisation and the higher level organisations. The regular flow of monthly data is routine and the tools are standardised as it is a set national M&E framework which does not empower local CBO's to build their evaluation capacity. This is because the standardised tools require information on process monitoring, and not evaluation outcomes.

A number of copies of the same report were submitted to several agencies and sometimes in different formats. For example, an NGO in the Northern Province had to submit five different copies of the same report to five different agencies that it reports to. The duplication of reports was time consuming, as the implementing organisations were preoccupied with the monthly and quarterly reports. Apart from the standardised reporting templates that were provided by the NAC, some organisations develop their own reporting templates. Staff of organisations were over-burdened with too many data entry forms to be filled out and entered into electronic formats, summarised and presented to their head offices, including the provincial and national data management agencies. In addition, with regular M&E staff turnover, it took time to train new staff and orient them into the data collection process and information flow procedures required by the NAC and the NDoH.

At the time of this study (April 2011-January 2013), one organisation in the province made an effort to train its staff in gathering data that could be used internally for other reasons, apart from reporting to higher coordinating agencies. Despite the investment

of time and funding on up- skilling staff, the number of trained staff leaving for better paid jobs elsewhere continues to deplete M&E skills and experiences.

Furthermore, there are different levels of internal reporting within some implementing organisations which further over-burdens staff with duplicate weekly and monthly reports. However, in one organisation, the intention was to also encourage internal use of the primary data for onward program planning.

> *We have a reporting framework. So we do have a series of reports for different levels so there are monthly reports that are done at the program level that are handed to the coordinators. And then the managers submit quarterly reports to the operations manager and that's standard across all of the branches. The branch manager does a monthly update one-two page report just to flag any major issues, and then once a quarter submits a more detailed report. The activity data has a separate but linked-in reporting structure, so the M&E assistant receives all the certification forms which are some of those data collection forms and then enters them into a database and then completes a monthly activity summary, of which a copy is given to the branch manager and a copy is sent directly to the M&E unit. So we collect our data monthly and then, when we receive copies of the quarterly reports, we are able to compare the data. The M&E assistants are also meant to prepare a quarterly summary to give to the component managers. So their reports contain technically, the same data that we've been getting every month. So trying to put in a bit of a quality check and also trying to encourage the branches to own the data and to feel that it's something they can use as well, rather than just collecting it to give to the M&E unit as monthly reports.* (Molly, female, in-depth interview)

There was interest to up-skill staff in basic internal data use but on a very small scale, as the training was conducted only a couple of times and not followed through.

The individual M&E capacity in terms of skills and experience were basic, but weak, and there were inconsistencies in the understanding of M&E terminologies among the different levels of staff structure within organisations. There was a lack of leadership and motivation to drive M&E associated with HIV prevention interventions. However, there were also factors that could enable the strengthening of building individual capacity in M&E: factors such as targeted interventions, and some M&E training that has occurred. The organisational culture, especially among the NGOs supported capacity building in evaluation. Perhaps this was because the sustenance of their programs depended on the outcome of their work which was translated through the monthly reports. The government

organisations had their own data reporting system, but the organisational culture supported a monitoring process rather than evaluation exercises.

The use of a long term qualitative study allowed for the research questions to be observed at different time points. Over a period of 15 months between phases 1 and 3, the study observed changes in the level of understanding, attitudes, and skills, and in HIV prevention programs generally. The main observations are summarised below (Table 14). Overall, there were no major changes observed except the change in HIV strategy from population-based to targeted intervention. Minor observed changes included a general increase in the understanding of evaluation, and an increased burden of work on HIV prevention.

**Table 14: Summary of main observations by phases and research questions**

| Research question | Phase 1 | Phase 2 | Phase 3 | Change observed |
|---|---|---|---|---|
| 1. Level of evaluation skills and experience | Low and limited understanding, experience, and skills | After two training sessions conducted on processes, understanding increased | Skills and experience still low | Understanding of program evaluation increased but skills and experience still low |
| 2. Attitudes towards evaluation | Generally positive attitude | Positive attitude continued (change in HIV prevention strategy around this time) | Maintained positive attitude and perceived evaluation for program sustainability | Increase in the understanding of evaluation. . E.g. a change in attitude from 'evaluation as a process to monitor staff performance' to 'evaluation is an informative process for program improvement'. |
| 3. Barriers and facilitators of capacity building in program evaluation | <u>Barriers</u>: Lack of leadership, evaluation low priority, insufficient capacity, lack of commitment from management, unclear | <u>Facilitators</u>: Positive attitude, targeted interventions, good partnerships and collaboration with development partners, use of | Barriers and facilitators generally remained the same. | <u>Three changes observed:</u> 1) Leadership increase in phase 2 but returned to the same situation as in phase 1.<br><br>2) Intervention strategy |

| Research question | Phase 1 | Phase 2 | Phase 3 | Change observed |
|---|---|---|---|---|
| | behaviour change theories, population-based interventions, poor networking among stakeholders, no national feedback from provincial reports.<br><br>In phase 1, nine out of 11 CBOs continued HIV prevention work. | national HIV and AIDS M&E framework.<br><br>Some leadership improvement in phase 2 when intervention changed to targeted populations. | By phase 3, the leadership role in M&E weakened and the situation returned to what it was in phase 1.<br><br>By phase 3, four CBOs ceased operation;<br>6 out of 11 organisations ceased operations in the province within 5 years (2008-2012). | changed from population-based to targeted population.<br><br>3) With more interventions ending, the burden of health promotion in HIV prevention increased in the Northern Province. |
| 4. Indigenous behaviour change theories | Observations of social cognitive theory and cognitive behaviour theory in operation but either not clear or unknown to CBO staff. But no obvious signs of other local health behaviour change theories. | Investigated indigenous health behaviour change theories using interviews, observations and case studies.<br><br>Unclear at phase two | Included scenario stories to other data collection methods to draw out any local health behaviour change theories.<br><br>Still unclear at phase three. | Just because no health behaviour change theory was identified does not mean that they do not exist. This research question could be further investigated in a future study. |
| 5. Can evaluation models be developed and implemented? | National M&E framework developed and used in Northern Province. | National M&E framework is mainly used for monitoring purposes. | National M&E framework continued to be used for monitoring of HIV prevention interventions. | No change observed, as no CBO mentioned anything about an evaluation framework for their own organisation.<br><br>As there is no change in the |

| Research question | Phase 1 | Phase 2 | Phase 3 | Change observed |
|---|---|---|---|---|
| | | | | capacity of evaluation and ECB, it is difficult to develop and implement any evaluation model in the province. |

**Conclusion**

The level of M&E understanding, skills and experience is generally low among implementers of HIV and AIDS prevention programs in the Northern Province. There are barriers that hinder capacity building in program evaluation (such as a lack of provincial and organisational leadership, conflicting priorities, insufficient staff capacity in M&E, and lack of commitment from management to build M&E capacity). Other barriers included the demand for monitoring rather than evaluation and inefficiencies in the reporting systems.

There are facilitators available that could potentially build capacity in program evaluation among indigenous staff (these facilitators include a change in intervention strategy from population-based to targeted intervention, the national M&E framework that guides the management of HIV and AIDS information, and the need for continuously gathered information to inform program improvement). The usefulness and effectiveness of the national M&E framework needs to be reviewed regularly and considered a facilitating document for building evaluation capacity in PNG.

Although vague, theories of behaviour change are embedded (by the national and international evaluators) in the implementation of interventions. But they do not affect the evaluation of the national HIV and AIDS prevention program as they are not understood well enough by local HIV prevention to implement theory-based evaluations. The results show that workable evaluation models that are understandable, practical and sustainable, were not developed and implemented in the study location.

# Chapter 6. DISCUSSIONS OF STUDY FINDINGS

In this chapter, the main findings of the study are discussed in relation to the research questions. The discussion will bring together the findings in the data and the literature to develop a model of indigenous capacity building in theory-based evaluation. This is a major outcome of the study. The main study findings are summarised under the relevant themes generated by the analysis. The strengths and limitations of the study are also discussed. This chapter ends with recommendations for evaluation capacity building (ECB), particularly for HIV prevention interventions in Papua New Guinea.

There were two main underlying themes generated by the thematic analysis. Firstly, the indigenous capacity to evaluate HIV prevention programs is weak and therefore requires strengthening through effective ECB; the evaluation of capacity building within the provincial structure, the organisations, and for the individuals working in HIV prevention. The second theme is that the organisations have not effectively implemented program theory to produce the evidence-based outcomes expected by the funders. In part, this is because the individuals working in the field have not fully understood the processes required to accomplish the outcomes, and have not adapted national program guidelines into local contexts, as they do not understand the theories behind the strategies, or the theories and processes are in some cases inappropriate to the local context.

There were a total of five research questions. Research questions 1, 2 and 3 form the basis of section 6.1, while research questions 4 and 5 are discussed in section 6.2.

## 6.1. Evaluation Capacity Building for Indigenous Implementers of HIV Prevention Programs

The first theme was generated through the data collected to explore the first three research questions of this study. The first research question investigated the level of understanding, skills and experiences in program evaluation among HIV and STI program implementers. The situational assessment conducted during the first phase of the study provided some insights. There was a weak capacity for program evaluation within all the nine organisations that participated in the study. Although there was some effort in M&E training, data collection and reporting, the understanding, level of skills, and M&E experience among study participants was low and perhaps contributed to the ambiguous understandings of how evidence-based outcomes are achieved. This finding is consistent with the findings of other studies that have

showed that M&E capacity among community-level programs and in many developing countries is very basic[49].(10)

In the early 2000s, studies conducted by Napp et al. (10), Jolly et al. (94) and Kegeles et al. (9) had all consistently shown that funded community-based projects lacked internal capacity to evaluate their own interventions, and often sought external technical assistance to provide evaluations to show evidence-based outcomes to donors. The above studies had large sample sizes, with the Kegeles et al. study covering 12 funding agencies. They identified that there was some M&E capacity building provided through training and technical assistance. However, the main barrier reported was inadequate funding for evaluation. Funders were willing to put in more money for evaluation, but were often not aware of the barriers the community-based organisations faced in strengthening the capacity of evaluation.(9) Concerns were raised that the informants in these qualitative studies understated the support they had received in order to gain more resources and training.(9) The evaluations had been conducted for funders and national agencies and policy makers, and as such the informants may perceive an opportunity for changes. Using data collected from interviews and a mail survey of community-based organisations, Carmen (183) addressed five research questions: (a) What types of activities do community-based organisations use to evaluate their programs? (b) What types of data do they collect? (c) How do they collect data? (d) Who has the primary responsibility for conducting evaluation? and (e) Where does the funding come from? The study found that program managers operate in an environment where they collect and report various types of evaluation and performance information with the support of evaluators and funders who have delivered a wide range of evaluation tools and instruction manuals for non-profit programs.(183) The study used a comparative framework to determine if differences in evaluation practices could be attributed to notable and commonly accepted differences between community-based organisations working in different service fields such as, social services, developmental disabilities, and community development.(183, p.62)

Evaluation offers an avenue for people to think of government programs and how they experience them, as well as a way to report results. It has become the centre of discussion for transparency and accountability.(219) In addition, evaluation is increasingly perceived as a means to build or maintain a 'learning organisation'.(209,219-222) However, much of the practical work in evaluation such as interviewing, designing surveys, and interpreting data requires skills that social science professionals learn in the course of their education. These skills are often not

[49] A basic M&E skill is referred to here as data collection skills using tools such as standard templates and survey forms for reporting purposes, and frequency tallying of data collected.

applied by the professionals as part of an on-the-job 'culture of evaluation'.(219, p.129) Hence, there is a call for raising awareness and capacity building in evaluation. For example, evaluation skills can be taught by actively engaging stakeholders in a participatory evaluation. When stakeholders are involved in the evaluation process, they are more likely to use the tools and skills they learned.(219, p.129)

In an overview of upward accountability approaches to development evaluation, Lennie and Tacchi, note that the common approaches to evaluating programs which use the logical framework approach (LFA) as the main tool were developed in the west and imposed on development organisations by donors. LFA is useful in measuring programs that have simple, expected results, but it is not a useful evaluation tool to measure outcomes of complex situations such as development goals or social change.(209) Many of the health promotion programs in PNG and other developing countries are complex and challenging to evaluate using the LFA tools because our socio-cultural situations are very diverse and not always in a 'straight line'. Health seeking behaviour changes usually takes a long time to occur; yet evaluations of health behaviour change are often expected to show results and impacts within a given "short" time frame (1-5 years). Lennie and Tacchi argue that the "dominant approaches to development evaluation are often focused on meeting the expectations and accountability requirements of donors rather than being accountable to all of the stakeholders involved and encouraging everyone to learn from the process in order to improve programs, develop better capacities and put more effective strategies into practice".(209, pp.15-16) They propose that to develop better accountability to communities and stakeholders, key concepts such as accountability and learning, and developing evaluation capacities that enable both learning and multiple forms of accountability, and empowering local development actors should be encouraged. Learning organisations that value evaluation, share knowledge with others, engage in regular critical reflection to learn from experience, continually improve their practices, and can respond more effectively to complex and rapidly changing contexts need to be created.(209, p.22) Similarly, Carmen suggested that the 'era of accountability' should create opportunities for more participatory approaches to evaluation. This includes: encouraging organisations to use evidence-based practices and be more deliberate about program strategy; identifying common outcomes and indicators for program managers to adopt and use; and using accountability mandates to create opportunities for capacity building and organisational learning.(110) This requires a cultural change and a change in the approach to evaluation from a top-down donor-driven approach to a more participatory approach.(209)

In Northern Province, whilst little if any evaluation is occurring in any one of the HIV prevention projects, the opportunities that accountability demands by funders creates, could support stronger collaborations among all stakeholders to enforce monitoring and evaluation as part of implementation. However, these opportunities can only be grasped if program based evaluations are able to be implemented by the individuals and organisations in the field. In exploring the levels of understanding and knowledge around health behaviour change theories, a key element in program theory (107), my study provided a unique insight when compared with other literature in the field. My study provides an insight into the gap between the use of theory based health promotion and the evaluation methods needed to assess project outcomes, and the use of the evaluation findings to contextualise and improve HIV interventions. The findings from my study show that the current methods (LFA) used in evaluating project outcomes may not be appropriate for theory based health promotions as change in health behaviours are complex and take longer to archive as discussed earlier. As such, if current methods are continued to be used, evaluation results using the LFA, may not provide the relevant feedback necessary for the improvement of health promotion interventions.

The second research question explored the types of attitudes program implementers have towards evaluating their programs. An enabling factor for building evaluation capacity was the positive attitude that organisations had towards program evaluation. Regardless of the weak technical capacity and leadership, the willingness to integrate evaluation into the HIV and STI intervention programs was unanimous. The organisations perceived the significance of evaluation as a process for checks and balances, to attain the project's objectives and sustainability. This unanimous positive attitude shown in the results may be related to the timing of this study. This attitude remained consistent throughout the three phases of the study. During the duration of the study, the funders for HIV and STI prevention projects were demanding the delivery of evidence-based outcomes. The CBOs felt pressured to show evidence of their work in order to receive a positive review and additional funding. Hence, there was a collective affirmation that evaluation was a useful activity to sustain HIV interventions.

Other international research has not found such positive attitudes, but the variations may reflect the timing of the study. Similar studies on the evaluation capacity building conducted among community-based organisations by Napp et al. (9), Kegeles et al. (10), Jolly et al. (153), Jolly (184) and Ruch-Ross et al. (142) showed some negative attitudes towards program evaluation. Some of these negative attitudes included: the technicality of the process, that the process was thought to be time consuming and impractical, fear that evaluation results might

reflect poorly on the staff, poor evaluation findings might result in future funding problems (10,94) and that asking questions in communities was intimidating to project clients.(9,142,153,184) My literature search[50] conducted for this study found that there has been no study published on the attitudes towards evaluation of programs since 2008, rather the focus was now on the 'evaluation of attitudes'.(185-187) Community-based projects, which are mostly funded by external agents e.g. development partners, understand and are being asked to be accountable and prove both the quality and sustainability of their programs.(188) They understand that monitoring and evaluation is the core to this accountability, and these shifts in funders expectations may have, since 2008, created this more positive attitudes towards evaluation amongst community based organisations, both in PNG and even globally. Times have changed and attitudes towards evaluation have changed. Building evaluation capacity among indigenous program implementers should be encouraged where evaluation is accepted; and as the findings of this study show, evaluation may now be accepted on a broader scale with more positive responses. This finding has important implications for the timing of M&E training, mentoring of research and evaluation, and re-thinking and re-designing program theories. The window of opportunity is when there is interest and a positive attitude towards evaluation.

Firstly the definition of ECB must be addressed. A recent paper by Lennie et al (225) the various elements of ECB discussed in the literature are described to include:

- Skills development of staff
- Culture change (organisational)
- Supportive environment ( resources required and leadership commitment)
- Respect for and valuing of local contexts
- Normalising evaluation of core business
- A learning environment.

The European European Centre for Development Policy Management noted (226) that in capacity building needs to focus on ensuring that individuals have personal abilities or attributes or *competencies* that contribute to the performance of the organisation or system (in this case Theory based Evaluation) and the organisation in which they work have the *capabilities* to support, facilitate and coherently combine these capacities in order to perform. In the case of this thesis the competencies (skills and other attributes) and the local staff in the HIV health promotion programs, needed to be understood, developed and supported, and in the appropriate cultural and

[50] Literature review process discussed in Chapter 2.

content contexts , and the organisations in which they worked resources and committed to supporting the sustaining and growing those competencies.

Then one can ask the questions: Evaluation capacity building for whom? And how can evaluation capacity be built among community-level projects?

To answer these two questions, two examples were drawn from papers presented at the recent 2013 International Evaluation Conference held in Brisbane, Australia which I attended. During the three-day conference, there were several discussions on the issue of a paradigm shift from the traditional technical, methodological evaluation practices driven mainly by external evaluators, to participatory evaluation practices which encourage collaboration between external program evaluators and the local organisations. The argument for a paradigm shift in participatory approaches is not meant to make project staff and indigenous project beneficiaries to become evaluators, but to involve and equip project staff with the understanding and skills to collaborate effectively in evaluation exercises by using user-friendly evaluation tools. For example, Nan Wehipeihana, an indigenous Maori evaluator who works with the Maori people of Aotearoa, advocates for evaluation that is culturally grounded, enabling, and which affirms Maori values and views, and seeks opportunities that offer the potential to increase Maori understanding of government processes as well as the government's understanding of Maori values, views and priorities.(152)

The paradigm shift gives emphasis towards ECB, as such, it can mentor project managers and staff in building the capacity of indigenous CBO staff to conduct evaluation for health promotion interventions. For instance, (Applied Research Training Development) ARTD Consultants build the capacity for internal evaluation in organisations by using a pragmatic approach through making the most of limited evaluation resources. ARTD's experienced evaluation consultants mentor program managers as a strategy for ECB. The consultants work with program managers to plan evaluations, conduct evaluations and use the evaluation results to improve project interventions.(189) There are other examples of indigenous project managers and staff of NGO's and CBO who are being mentored by evaluators.(211,216) Nevertheless, staff turnover is an issue that occurs frequently in ECB, where key leaders and change agents are lost as found in my study and other studies.(216, 217) My study found that CBOs in the study location did not have mechanisms in place to familiarise new M&E staff. Project managers wasted time training the new staff on a M&E job. I suggest, for example, that a hand-over-take-over mechanism should be in place so that skills are transferred from the out-going M&E staff to the in-coming staff, either by producing a document (such as a detailed terms of reference which can

be updated when M&E systems change) to orient the new staff or prior to leaving the position, the out-going staff trains the new staff a week before leaving the job. Tacchi et al., who have experience in this issue by working in a communications project for social change in Nepal, suggest the involvement of a wide range of staff members in an ECB program, with the inclusion of strategies to enable the continuation of leadership and change agent roles. These strategies should enable knowledge, skills and changed attitudes to be transferred to others within an organisation.(216, p.155)

Similarly, Australian Aid agency staff are using evaluation to improve accountability and effectiveness in countries that need ECB. The Australian Aid staff in Manila sought to uphold that commitment through an evaluation capacity building effort. A collaborative team consisting of the Centre for Program Evaluation at the University of Melbourne, the Australian Aid staff in both Manila and the head office (Canberra) tailored an evaluation capacity building program suited to the needs and challenges of a multi-level, multi program organisation. The program develops ECB in the Philippines among local organisations funded by an external development agency.(190) Similarly, there are demands for more M&E training and as a result funds are being established by some donors like the Australian aid agency to support evaluation capacity building in developing countries such as PNG. More organisations are trying to assist in addressing M&E gaps by providing training and workshop resources, technical support as well as funding. In parallel, there is also an increasing call for donors to shift their M&E needs to the needs of the countries they are meant to assist.(3,9) Achieving this objective is difficult as it requires the donors to be willing to give up some control in the evaluation process and build evaluation capacity within the country.(218) The evaluation capacity building is an on-going process and should go beyond a series of training and ad hoc workshops. There is a need for more than just organisation-based training and workshops. Project evaluation courses need to be offered in institutions, and professional associations such as the PNG Society of Evaluators need technical (mentoring and up-skilling) and funding support from donors interested in building in-country evaluation capacity. Carden argues that the evaluation gap is not found in the methodological debates, but in the lack of focus on supporting the development of evaluation as a profession in developing countries.(218) He emphasises that this goes beyond training and capacity building and should include research, curriculum development for academic and technical education, executive training, a professional association that considers standards, advocates on evaluation policy, and brings innovation to its members. Furthermore, building the capacity of evaluation involves enabling citizens, researchers, and evaluation professionals to build indigenous evaluation cultures and capabilities to contribute to improved decision making.(218, p.220)

ECB is for everyone involved in M&E. Even experienced evaluators continue to learn new methods of improving program evaluation. The methods used in building evaluation capacity also vary, depending on the types of interventions conducted. In the case study used in this thesis, in HIV prevention programs conducted by indigenous staff in NGOs, there is a twofold need for capacity building among indigenous project staff. These community-based organisations operate on a tight budget and, as such, are unable to engage experienced external evaluators in a systematic manner; so indigenous capacity is an affordable option. Secondly, as discussed above, all staff must be involved in evaluation in order to improve program effectiveness. Thus, CBOs need to build internal M&E capacity; and this requires leadership support within the organisations, an on-going mentoring from evaluators, and the development of an evaluation culture that is sustained over the life time of the project.

The third research question probed for the barriers to, and facilitators for, conducting evaluations to measure behaviour change. The barriers included, a lack of leadership, competing activity priorities which gave evaluation a lower priority, low M&E skills, and lack of commitment to evaluation. Leadership in the coordination of any health promotion program is crucial in successfully implementing health behavioural change interventions in any given location. The study found various limitations that hindered the opportunity to build M&E capacity among HIV and STI prevention organisations during 2008 to 2012. A major limitation was the lack of strong leadership in the provincial agency responsible for coordinating all HIV prevention programs. Although there was strong management within various HIV prevention organisations, the absence of M&E leadership at the provincial level resulted in a defunct M&E structure and weak collaboration among stakeholders.

The national M&E framework (19) clearly outlines the PAC's responsibility as the middleman to coordinate delivery of interventions and reliable data flow between the community-based organisations and the national agencies. However, a breakdown in the middleman's role left serious gaps in the successful implementation of the national HIV prevention policy in the Northern Province. Some of these gaps as found by the study included: short life spans of interventions, inconsistencies in service delivery, and a provincial M&E structure (PROMEST) that did not operate in the last five years. The short life span of some interventions did not enable sufficient time to design a provincial M&E structure to be pilot tested and implemented. Furthermore, there were inconsistencies in the delivery of interventions where programs had to end and then resume after one to two years. Consequently, the scope of coverage for HIV and STI prevention activities was confined to a small area within the proximity of the main town of

Popondetta. It seems possible that priority was not given to rectify these gaps because the Northern Province was considered a low HIV prevalence province (56) and therefore was not a province of priority for HIV interventions in the country. At a higher level, there was no urgency from the National AIDS Council to implement and reinforce the national M&E framework in the province through the PROMEST. The sustainability of programs was not advocated for, nor financially supported, and as a result almost half the number of organisations that worked in HIV prevention in the study location have since ceased operation. Since there has been no comprehensive review of HIV interventions in the province to determine whether the province will maintain a low HIV prevalence, the future trends of HIV and STI are unpredictable.

Literature on capacity building in evaluation has focused on the methodologies used (142,184,191), the role of technical assistance and funding (183,188,192), training's role (193) and organisational structures (142,194,195); there has been little emphasis on strengthening leadership at sectoral levels and district levels to drive capacity building in the evaluation of programs. A limited number of studies have discussed the role of leadership in association with the implementation of national M&E frameworks. For example, a report to the United Nations Evaluation Group suggested that the vision of leadership within a country was a building block for developing a national evaluation system.(196) My research supports the concept that providing leadership to drive evaluation processes should be applied at all levels, not just at the political and national levels.

Many of the barriers discovered in this study were also reflected in a survey conducted by Kegeles et al.(9) In their study conducted among 44 US organisations they found that the main barrier to evaluation was technical. CBOs found it difficult to understand, design, and implement evaluation, and they lacked feasible and meaningful evaluation tools and methods relevant to their programs. Kegeles et al. reported that many CBOs did not know how to analyse data after it was been collected. Many CBOs did not think through the logic of their programs and could not identify what they did in their programs, delineate the specific objectives of their programs or how these objectives related to their program goals (9). These common barriers in ECB are shared globally, including in other studies and reviews conducted in PNG.(7,36,38,77,151) Furthermore, in PNG, the HIV and AIDS Independent Review team (2011) reported that apart from the capacity issues around strategic information, there were systematic problems that served as obstacles to effective use of data. Some of these issues included: the lack of data sharing, the lack of a central repository at the provincial-level management, the failure of collaboration between stakeholders in the provinces, and multi reporting channels.(7) This combination of

findings provides some support for the conceptual premise that evaluation capacity building involving both individuals and institutions in HIV interventions urgently needs strengthening.

The facilitators for building indigenous evaluation capacity in the Northern Province include, conducting targeted HIV interventions, collaboration among stakeholders in the province, and using the national HIV prevention M&E framework as a key document to monitor data flow between community-level organisations and the HIV and STI data gathering and processing agencies at the national level. Firstly, targeted interventions are easier to evaluate as they focus on a specific group of people needing a specific service.(11) Many of the HIV and STI interventions in the Northern Province prior to 2012 were conducted among the general population. As such, the efforts to monitor and evaluate the large scope of interventions among wide ranging sub-groups of the population was impractical, especially when trying to measure the successes of the various interventions occurring simultaneously. By end of 2012, all HIV and STI prevention programs in the study location were targeted interventions involving people living with HIV, selected high risk communities, selected most at-risk groups such as female sex workers, young out-of-school males and females from a specific industrial area, and the workforce of an agricultural industry. A positive implication of this finding is that the HIV prevention programs now have a narrow focus. Therefore, an M&E unit could be created as a key component within the programs, where it can be effectively managed operationally and financially separate from the other project component at the CBO level.

Secondly, the findings of this study revealed that although networks were not strong among organisations in the Northern Province, there was a failure of collaboration between stakeholders in the provinces[51] including provincial health, provincial administration, and PROMEST (who report to the national AIDS Council Secretariat). This supports the findings of the National HIV and AIDS strategy review of 2011.(7) However, the Northern Province organisations had good working relationships with outside development partners, such as the Australian aid program, ADB, research institutions, universities, and with the national coordinating agencies such as the National AIDS Council and the National Department of Health. A possible explanation might be that there were regular communications with the outside agencies, because monthly and quarterly reports were required for accountability. In addition, research institutions and universities required information for the development of research designs and feedback to the users of the data. Follow-up phone calls, emails and meetings had to be organised to keep reports moving in a timely manner.

[51] The review team conducted interviews in four of the 22 provinces in Papua New Guinea.

In contrast, at the provincial level, no organisation was accountable to another; therefore the need for regular meetings and communication was perhaps not perceived as necessary. The collaboration that the local organisations have with the outside stakeholders is a possible enabling factor for technical and funding assistance, which could be provided by the outside stakeholders to build evaluation capacity in the province. However, the drive to get technical support and funding should come from within the province. The provincial-based organisations have to be proactive in getting the assistance they need from the partners outside the province. Externally, technical assistance could be drawn from existing professional evaluation bodies and through various online capacity building initiatives. In addition, there are links between the PNG Association of Professional Evaluators and the Australasian Evaluation Society (AES) that could enhance opportunities for capacity building through workshops and training. There is also a possibility of a collaborative relationship with the Maori evaluators who are willing to share their knowledge and experiences.(211) An example of such a collaboration took place between the Maori evaluators and indigenous Alaska Natives where the skilled and experienced indigenous Maori evaluators helped to trained and mentor Alaskan Natives in program evaluation. A two-day face-to-face workshop was held in Alaska, where workshop participants developed an evaluation plan for a capacity building project. The collaborative relationship between these two indigenous groups of evaluators continued through videoconferencing through teaching sessions on evaluation planning, evaluation design, data collection, making evaluative assessments, and testing results.(21, p.572)

Thirdly, the introduction and use of the M&E framework should be an enabling factor to drive M&E capacity building in the study location and elsewhere in PNG. The National AIDS Council, in collaboration with its partners, developed this M&E framework as part of the National Strategy to guide HIV prevention in PNG.(91) Nevertheless, it has been reported elsewhere that M&E frameworks have facilitated capacity building in evaluation. As reported in other literature, evaluation frameworks have been developed in large-scale intervention programs in public health, such as programs funded and implemented by CDC (108), ADB in-country specific programs(106), and many other programs where local M&E capacity has been built around the national evaluation frameworks. But the scaling up of this framework into the provinces of PNG has been inconsistent.(7) This study found that although staff of community-based organisations in the Northern Province have been trained to facilitate the implementation of the framework, staff turnover has meant that in-coming staff have had to be trained again in their new roles in M&E, and this was not often happening. The presence of the National M&E Framework should

provide a series of standard trainings which should be reviewed regularly. This has not occurred in Northern Province.

In summary, there are limitations in the CBO staff capacity to conduct evaluations. However, the facilitators identified in this study could strengthen individual capacity in program evaluation. Funding and resources should be increased around the facilitating factors, to enhance individual M&E capacity among CBO.

## 6.2. Organisational Evaluation Capacity to Implement Primary Health Programs Underpinned by Program Theory

The second theme was that program theory was not well understood and therefore not implemented. The fourth research question was designed to identify if any indigenous theories of health behaviour change existed among implementers of HIV prevention programs. This was done because I hypothesised that the global health behaviour change theories may not have been used on account of indigenous theories being used instead.

Although it was difficult to establish a local theory of change in my study, other community development projects have conducted evaluations using indigenous theories and frameworks to evaluate community-level interventions. There are two such examples drawn from the Maori of New Zealand. Firstly, the Kaupapa Maori theory, '*carrying things out properly from a Maori standpoint'*, has provided a theoretically sound platform.(197) This platform is based on six key principles and has developed a unique evaluation theory and practice in Aotearoa, New Zealand. The six principles are: control, challenge, culture, connection, change, and credibility. This indigenous theory came about as a result of the Treaty of Waitangi, which related to the ownership of land. Government services on the land are evaluated using the local theory developed by Maori theorists. The Kaupapa Maori theory is an example of an indigenous theory that could work in designing evaluations for health promotion. For example, under the control principle, the theory assists program managers to make decisions which include the achievement of goals.(197, p.14) The challenge principle provides a summative focus on assessing if the needs of the program consumers have been met; the culture principle emphasises on the context; while the connection principle ensures collaborative effort. The change principle generates the explanations of successes and failures, and finally, there is credibility when the evaluation is a projection of subjective values, and when evaluation exerts power that should be used to provide solutions to health problems.(197) This is the indigenous theory underpinning the evaluation of their interventions.

The second example relating to 'indigenous theory' is from a locally tailored framework that was used to evaluate a seven year obesity program among the Maori of New Zealand. The framework was used to evaluate the Healthy Eating – Healthy Action (HEHA) strategy that was implemented to lower obesity rates among the Maori population.(198) According to Boulton and Kingi (2011), the vast majority of support services relating to New Zealand's nutrition and physical activity levels serve the Maori communities; therefore, the evaluation of the HEHA Strategy was necessary through the Maori 'lens'.(198) The Maori lens focused on Maori and the Pacific models of health. That meant that the HEHA Strategy recognised a diversity of different cultural approaches and views. The evaluation framework used to evaluate the HEHA project enhanced participation by the indigenous evaluators; it involved Maori leadership in developing programs, implementing services, and participation in research and evaluation. The framework was designed to guide the overall design of the evaluation, including the examination of the context, mechanisms, the outcomes, and the associations between these factors. This was a collaborative effort between a wider evaluation team with the inclusion of a Maori evaluation team. The framework captured a participatory approach to evaluation which featured issues that related to Maori development, autonomy, involvement in service delivery, leadership, and integration with other health sectors and environment sustainability. These are two examples of programs that are implemented based on indigenous theories of change.

In my study area, the informants repeated what was told to them in M&E training and meetings. For instance, whether they understood the meaning of evidence-based evaluation or not, they continued to use the word as it was a terminology used by the managers. A possible explanation for this finding might be that staff did not know enough about the program logic or understand it well. For some organisations in the study, the program logic was developed years after the interventions had started, so for a long time programs were being implemented based on quarterly and annual activity plans which project staff were accustomed to. Thus, they delivered short-term outputs as expected by higher management agencies. Another possible explanation for this is that individuals may have had theories of how they would accomplish health behaviour change among their project clients but were not encouraged to speak about it. This finding should be treated with caution, as not enough is known about local health behaviour change theories in Papua New Guinea. This study was the first attempt to tease out ideas and models of change using HIV prevention as a case study.

Research question four asked: 'Are there local theories of health behaviour change and how do they affect the implementation and evaluation of the national HIV prevention policy in

Papua New Guinea?' This may perhaps be a premature research question to ask in the PNG HIV and AIDS context, but the examples from the Maori land protection program and the obesity prevention program in New Zealand discussed above certainly indicate that local theories and concepts have underpinned the evaluation of large community-based projects. The results of the evaluations of the Maori land and obesity programs have the potential to contribute immensely to the decision making processes and influence policy at the national level. Future studies to explore local behaviour change theories may be more effective if workshops with various staff and stakeholders were conducted to develop appropriate theories of change, using a suitably adapted version of useful tools specifically designed to develop theories of change. For example, a workshop manual developed by Keystone Accountability for Social Change gives a step-by- step guide on how to provide workshop participants with the skills and knowledge on how to develop a theory of change to documenting the evidence of impact.(159) The manual is also a good tool for exploring health behaviour change theories that are implicit.

The final research question investigated 'the potential for workable evaluation models that are understandable, practical and sustainable, and which can be developed and implemented'. Based on the data analysed, it is clear that evaluation models based on health behaviour change theories can be developed. Social cognitive theory and cognitive behavioural theory were in operation within all the organisations involved in the study, but these theories were either not clearly understood or were unknown. There was some M&E capacity within organisations, creating a foundation for evaluation models to be developed and implemented. Organisations were exposed to M&E terminologies and processes, but did not have evaluation models in place. A possible explanation is that organisations within the province, and perhaps nationally, did not nurture a culture of evaluation within community-level organisations. A culture of evaluation that develops and clarifies understandings in evidence-based outcomes which are linked to behaviour change theories and models is required to build theory based evaluation models as the working norm. It also requires staff to appreciate the value of evaluation as a means of on-going learning and program improvement as well as upward accountability, and to embed evaluation into all aspects of the organisation and at every stage in the program development cycle.(137, 209) The use of effective participatory evaluation approaches is a key element in this process.(137)

Behavioural science theory is recommended as a basis for prevention programs, yet many HIV and STI prevention providers have little academic background in this area and therefore see no relevance of theory to their work.(148) However, if training on health behaviour change theories is conducted, this may encourage understandable and practical evaluation models

to be developed at the service delivery level. In their study, Gandelman et al. (2005) questioned 336 staff from CBOs attending 21 training sessions in the United States on why theory was not used more often as a basis for program interventions. The responses included: not relevant to work, too much work, vague, abstract, and boring. During the training, participants were given an exercise to create their own theory to assess intuitive knowledge and beliefs of behaviour science theory. This activity was conducted to reinforce information that participants already knew, and helped to set the stage for the implementation of effective interventions using a theory-based approach.(148) Understanding how to effectively apply health behaviour change concepts could enhance evaluation skills which are theory-driven. Building capacity in local community organisations begins with a participatory process of community members, prevention providers, and researchers, working together as equal partners.(148) Consequently, better translation of evaluation results into practice using theory-based interventions will benefit the field of HIV prevention. Furthermore, a culture of evaluation needs to be nurtured among CBOs.

An approach for ECB that has been well documented is the participatory approach which advocates for capacity building that involves all partners in a community intervention.(148,200) The participatory approach encourages sustainability after external funding ceases (193,201), is a flexible approach, a learning and doing approach, it generates trust and understanding, and provides rapid feedback.(216) Increasingly, agencies supporting community health promotion interventions require participating communities and evaluators to specify how the intervention will be maintained once agency funding ends. The participatory process is essential at all stages of capacity building. However, a critical review by Tacchi et al. (216) on the use of participatory methods to build evaluation, indicates that participatory methods requires time, energy, resources and commitment to be effective and that NGO's working in developing countries face real challenges in conducting participatory evaluations.(216, p.152) These challenges include: addressing regular staff turnover, balancing the theoretical and the practical aspects of building evaluation capacity, the power of knowledge between all stakeholders, and the cultural contexts in which these power relationships develop.(216) Tacchi et al. suggest a holistic approach[52] to building organisational evaluation capacity which includes: taking ownership of the organisation's capacity development initiative, focusing on the needs and priorities of the organisation as a whole, managing capacity development processes, prepare for monitoring and evaluation at the beginning of a capacity development initiative, that capacity development is

[52] Holistic Approach adopted from Horton D, Alexaki A, Bennett-Lartey S. et al. (2003). Evaluating capacity development: Experiences from research and development organizations around the world. The Hague: International Service for National Agricultural Research. 2003; p.55.

more than a one-off event, engage stakeholders in the capacity development process, and establish an environment conducive to learning and change. In addition, staff should be encouraged to view participatory evaluation as an on-going program improvement process that could facilitate for the development of a learning organisation.(216, p.152) .

There is therefore a "tension" between the funding agencies desire to see results, in a certain time frame ( and cost), and measure cost effectiveness (value for money) based on a "health" outcome not a longer term capacity for sustainability outcome and their desire to have sustainable capacity "upon their departure" which requires a participatory approach with longer timeframe and often delays in the "health" outcome, and driven by a different philosophy of participation being means to an end or participation and capacity as the end in and of itself.

## 6.3. Building Indigenous Capacity to Implement Theory-based Evaluations

The literature reviewed showed four main areas of capacity building in theory-based evaluation (TBE); 1) the establishment of an evaluation team; 2) the selection of behaviour change theories; 3) the implementation of the evaluation, and 4) the use and dissemination of evaluation findings (Figure 9[53]). Across the examples described in this literature there were common problems identified that inhibited capacity building. In a theory-based evaluation, building capacity to evaluate health promotion programs, including HIV and AIDS interventions, usually begins with a team of evaluators to design the evaluation.(2,18,108,183,184) Management staff of CBOs are called in at the beginning to provide information but do not continue as part of the evaluation team. Other CBO staff may be included in the process of evaluation but as data collectors. In some cases, evaluation teams do not include members of the CBOs because they lacked competency in evaluation.(205) In other instances, project managers were invited to participate but only sat as members of the steering committee.(205) Thus, there are insufficient efforts put into place to constitute evaluation teams that build indigenous M&E capacity at the community level.

As behaviour change from unhealthy practices to healthy choices is a primary intention of health promotion, behaviour change theories are essential to underpin interventions. From the literature reviewed for this study, no attempts have been made to identify local health behaviour change theories (Figure 9). Studies that discuss having identified local theories, are describing

[53] Figures 9 and 10 are data-based models that emerged from the primary data analysis but are supported by the overall literature reviewed. Figure 10 is a model of indigenous capacity building for theory-based evaluation developed from my study which formed the basis for the discussion chapter.

building local capacity. For instance, in one study in New Zealand, (197), the Kaupapa Maori theory-based evaluation is about building local capacity which integrates cultural relevance, participatory and collaborative approach, empowerment and ownership. It is not a health behaviour change theory. As I have previously noted – despite several efforts I was also unable to identify local health behaviour change theories in the communities. Further work needs to be done on finding research approaches to meet this need.

Evaluation capacity building using methods such as training, providing reading materials, and trainer of trainers have been undertaken in the study location and in PNG, however, due to low literacy levels, and the lack of follow up and mentoring, many of the skills and information acquired have not been fully utilised by CBO staff to conduct internal evaluation. Methods such as providing: user-friendly manuals on program evaluation; on-site and telephone technical assistance supporting program evaluation, including provision of data analysis; series of training workshops; training of trainers to disseminate skills in conjunction with manual-based resources; and interactive web-based systems to guide evaluation design, data collection, data entry and analysis, work favourably in development nations such as Australia (223) where the skill level is higher and communication services such as the internet and the telephone are easily accessible, affordable and reliable. Story-telling is valuable in the PNG context as information is commonly transferred through verbal communication. As such, story-telling can contribute valuable data to the processes in the evaluation of HIV prevention programs in PNG through the use of most significant change techniques and community conversations.

The participatory approach for ECB in PNG is an appropriate method to use. The participatory capacity building approach is about learning on the job. Forss et al. recommend a participatory approach with a concept of 'learning by doing' (219), as an effective way to develop the capacity of staff in an organisation. This approach is less theoretical, more practical and relevant for building evaluation capacity. From the organisational point of view, learning by doing can be cost-effective. Learning can be on-going and combined with initial training, ongoing mentoring, and backed up with manuals and other support materials. For example, McKenzie et al. report on a participatory M&E strategy used by a youth-based NGO in Kenya where researchers worked together with the young people to develop definitions and tools to find out the

indicators, explore appropriate participatory methods for M&E, and assess and build capacity[54] in M&E.(86) Although this strategy provided empowerment and enhanced M&E capacity for the NGO beneficiaries (youth), the study did not have the time to carry out an evaluation. The program suffered from a lack of prioritization and staffing; and as a result, there was an inability to measure what impact the acquisition of key life skills had on the targeted youth population.(86, p.374) Learning from such studies as McKenzie's where a participatory M&E capacity building was conducted but not evaluated; I have developed a model on how to build indigenous capacity in theory-based evaluations. My model emphasises on the need for continuous mentoring and a stronger and regular feedback system based on the findings of my study. It begins with needing to have an explicit awareness of health behaviour change theories made to health service implementers at the community level. The model is illustrated in Figure10.

1. Starting from the bottom, evaluators should establish an explicit theory of health-seeking behaviour change. If there is none, then a theory of change should be developed for the program. If there is a theory of change in operation, evaluators should explain the theory/theories to all CBO staff and not just those at management positions. Staff have to understand how health behaviour change theories work. This means that theories have to be explained in their simplest form and developed into plain language versions (e.g., use of simple stories and diagrams). My study found that health behaviour change theories were not explained clearly in the M&E training conducted in the province among the CBOs, and also that there was no attempt made to find out if local health behaviour change theories in the HIV prevention programs were in operation in the training and workshops conducted.
2. An evaluation team comprising evaluators and representatives from the health promotion program, and other key stakeholders is then formed. The local team trained to conduct the evaluation should be prepared with evaluation competencies in; research design, behaviour change theories, skills in qualitative and quantitative research, and knowledge of data utilisation for planning and implementation. The trainer must be; culturally competent and sensitive to indigenous gender issues, and be able to provide long term mentoring through all or at least some stages of the evaluation process. Trainers should also have skills in competency-based training; which is training that is designed to allow a learner to demonstrate their ability to perform what they have learnt. Learners have to demonstrate the task, activity or exercise well enough to be assessed as competent.(206) Another idea is to use

[54] Together with representatives from soccer teams, the researchers assessed and developed M&E capacity by self-evaluating the research team's progress, analysed results of research, reviewed training topics, reviewed checklist, questions and probes the research team could use, and introduce new research techniques such as observation.

a train the trainer approach so that M&E staff can later train others and build capacities more widely among CBOs and people in the community.(208)

3. When selecting a health behaviour change theory, the evaluators should try to find out if other local health behaviour change theories are present. If present, discussions about how best to utilise them should be encouraged. If no local theories are present then a health behaviour change theory should be selected and explained with clarity to the staff of community level organisations. A participatory process using relevant tools would be most effective in identifying local behaviour change theories. Also, some guidance needs to be provided by the evaluators about how to select the most appropriate and useful health behaviour change theories.
4. With well thought out budgets, adequate planning, funding and resources, the evaluation should then be implemented. There must be an explicit plan developed for the theory-based evaluation with everyone in the evaluation team taking ownership of the plan and executing the evaluation together.
5. Findings of the evaluation should then be documented and disseminated to all stakeholders, and used by the health program to improve the intervention. The findings should also guide the next theory-based evaluation so it continues as a cycle.

Through the process described (1-5), mentoring should continue to the dissemination of findings. It is important that CBOs own the evaluation findings and use it to plan future interventions. The process should include a strong leadership in M&E that promotes a culture of evaluation in the workplace, a workable evaluation framework, clear health behaviour change theories that are understood at all levels of the organisation, and a commitment from the management to support well planned evaluation processes.

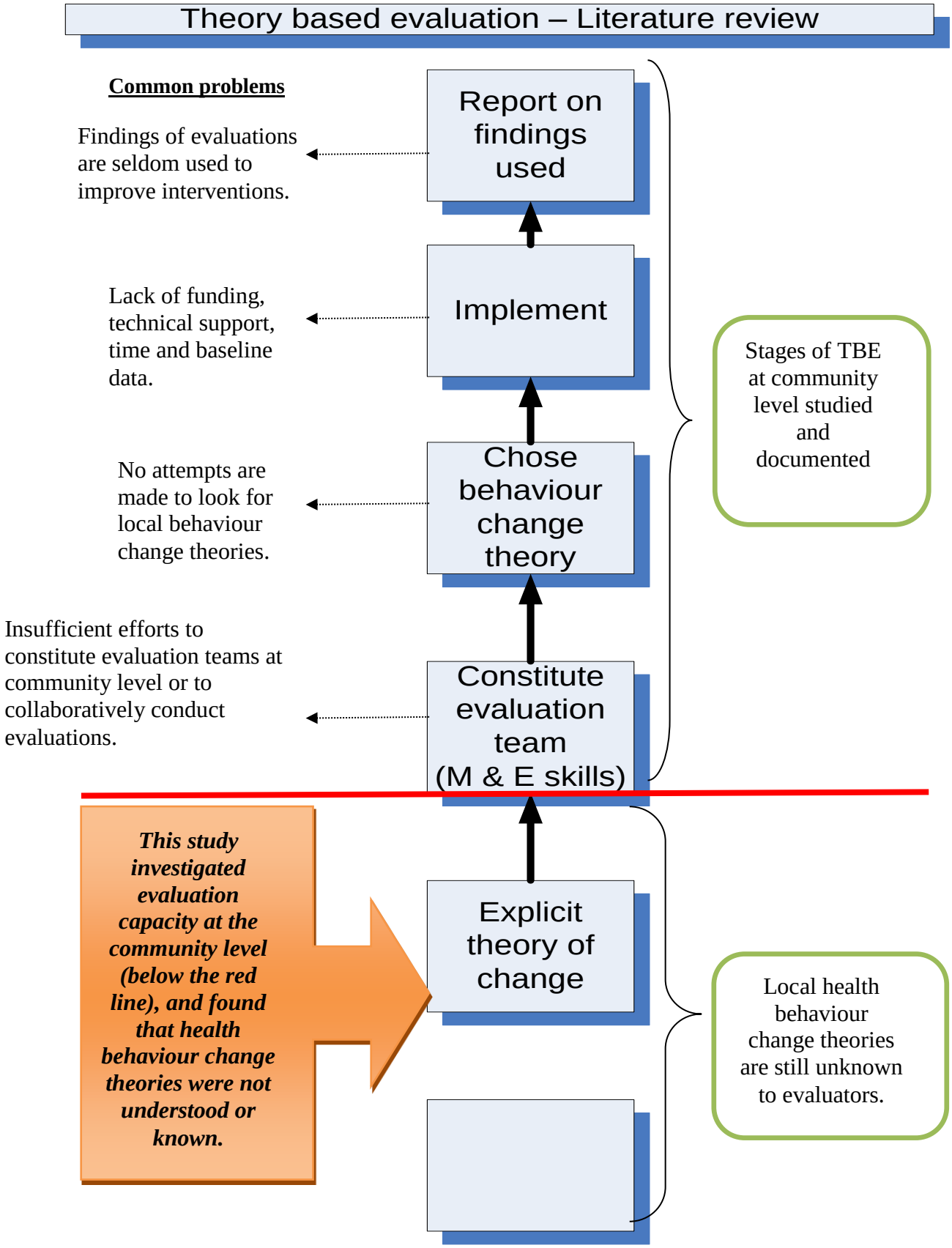



**Figure 9.[55] Capacity Building of Theory-based Evaluation as Reviewed in the Literature**

[55] Note that Figure 9 is placed in the discussions chapter instead of the literature review chapter because it is easier to compare Figure 9 to Figure 10 and relate the gaps in the literature reviewed to the model developed.

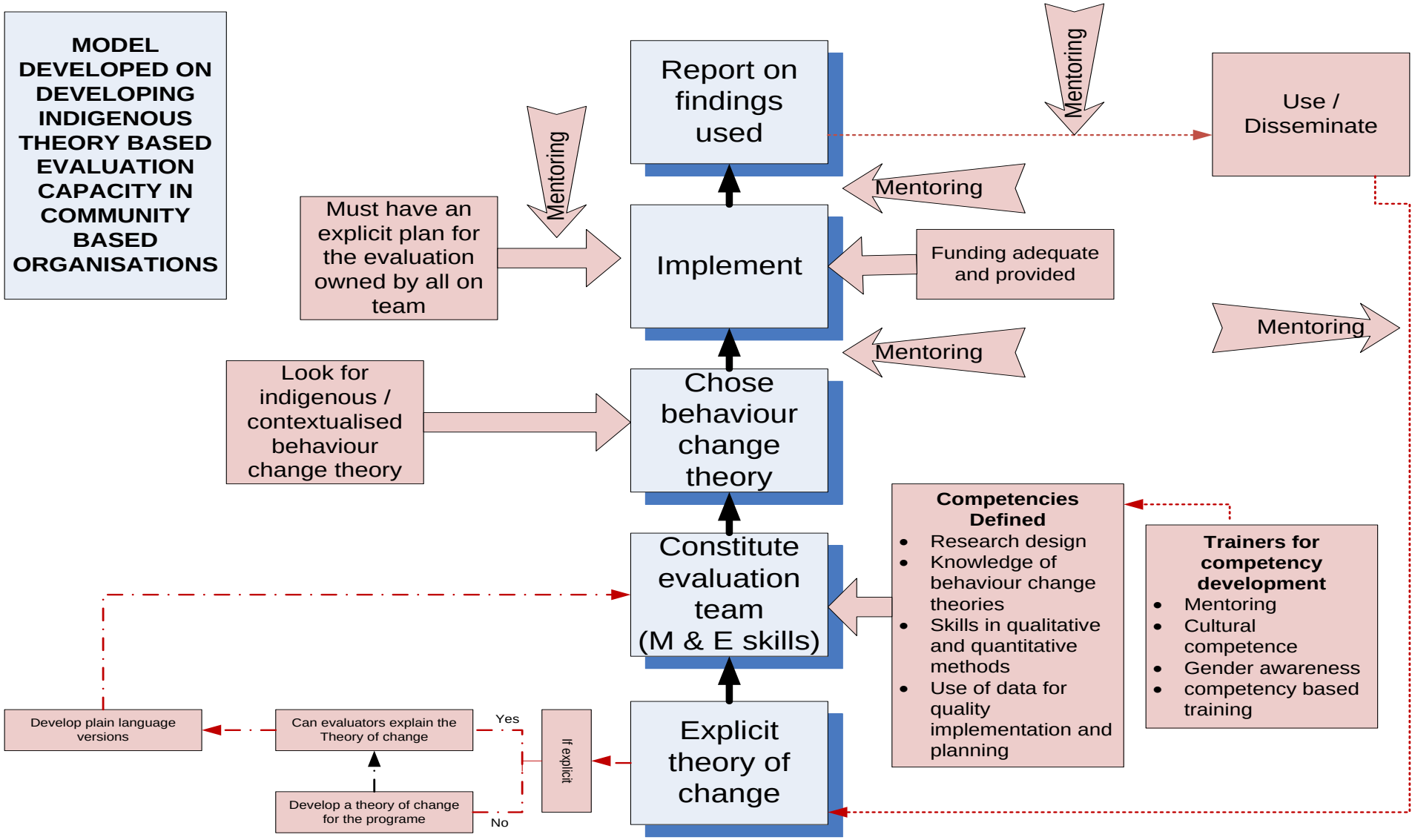



**Figure 10. Indigenous Capacity Building for Theory-based Evaluation**

Finally, this thesis focussed on traditional health behaviour change models used in public health research, therefore the model presented reflects capacity building within the public health perspective. More recent social and cultural behaviour change models such as social communications for development (224) have been developed, but were beyond the scope of this study. These could be explored in future research. Other topics that were not covered in this study could be explored in future research as well; such as, a) the deeper systematic, organisational and cultural factors that contribute to the lack of ECB in PNG, b) the common ways in which things such as administration operate in PNG in relation to ECB, c) issues relating to the empowerment of CBOs and their staff and their dependence on higher authorities, and d) the differences found in higher authority and if they reflect any feature of the PNG culture.

## Conclusion

A participatory theory-based evaluation model recommended by my study is one that embraces the facilitators of capacity building and improves on the factors that limit theory-based evaluation at the community level. The model designed in this study can be tested when designing a TBE for any health promotion project. When I initially planned the study design for this research project, I wanted to conduct pre and post interviews with an intervention in between. But, after the situational assessment in phase 1, it was unclear to me how the intervention would proceed. After conducting three phases of data collection and analysis, a model for indigenous capacity building in theory-based evaluation emerged. In all, it has been a learning experience that at the end of the study, the model developed now provides the intervention I could not work out at the beginning of my study.

## Chapter 7. CONCLUSION

The research project undertaken was innovative, as this is the first study conducted in PNG where the understanding of program evaluation was investigated among service providers. Due to the growing expectations of policymakers and funders of health programs for CBOs to produce evidence-based outcomes, this study was conducted to establish the challenges that CBOs face in delivering project outcomes. Based on my work experience, and the literature reviewed, it was identified that there is a lack of knowledge on how well service providers (specifically in HIV prevention programs) understand health behaviour change theories. As such, I investigated evaluation and its link to scientific health behaviour change theories. The study also investigated if there were indigenous health behaviour change theories and models used in the HIV prevention projects.

The HIV prevention program experience was developed as a case study for the health sector's health promotion programs. The results from this study can be linked to other health promotion programs. For instance, the behaviour change theory underpinning any health promotion should be clearly understood by the local implementers of the intervention, and the indigenous capacity to participate in program evaluation should be strengthened among CBOs.

The thesis described the HIV prevention interventions in the Northern Province of PNG from 2008 to 2012. Over the five year period, various organisations implemented various strategies to combat the spread of HIV and STI in the province. However, a significant gap in the interventions was the absence of evaluations to assess program outcome indicators over time. Accounts of the gaps and challenges faced in program evaluation, as well as the enabling issues that could support the efforts to develop evaluation capacity among indigenous staff of community-based organisations, have been discussed in this thesis. In addition, the thesis discussed the evaluation capacity in the Northern Province, and the understandings of program evaluation and M&E terminologies among the service providers of HIV prevention.

The purpose of this study was to investigate the facilitators and barriers for indigenous program staff and managers to conduct realistic, reliable and valid evaluations in PNG, using HIV prevention programs as a case study. The study intended to identify local understandings from implementers, of evaluation within the context of HIV prevention programs, as well as identify barriers and facilitators for evaluation in HIV intervention programs. The study was also designed to explore local behaviour change models, and review the issues surrounding evaluation capacity

building (ECB) to enhance program evaluation within the various HIV and AIDS interventions in the study location.

Despite over 10 years of HIV prevention programs in the Northern Province, M&E capacity was developed only within the past three years. The organisational support for ECB within the province was very feeble in terms of skills, experience, understanding and leadership. Conversely, although there were various barriers that contributed to the lack of ECB, there were enabling factors that could facilitate the building of evaluation capacity among the community-based implementing agencies. The study could not show that there were local theories of health behaviour change operating or evident within the HIV interventions, but it was found that two "scientific" health behaviour change theories (social cognitive theory and cognitive behavioural theory) were implicit within the HIV and STI prevention activities. The two scientific theories were not clear to the project staff to be used as the basis for the overall intervention programs nor for the one-off interventions such as the national political elections and the World AIDS Day. As there appeared to be very little awareness of program theory driving the interventions, the study findings revealed that organisations found it difficult to understand the role of theory in such health promotion programs as HIV prevention. Consequently, CBO staff did not know how to deliver evidence-based results as required by their project funders. The study findings also showed that M&E knowledge was available within the CBOs, albeit with a lack of comprehension. There has been M&E training, and staff of CBOs were involved in collating data and processing the primary information for reporting purposes. Therefore, the baseline evaluation skills found within CBOs in the Northern Province can be nurtured to a capacity where indigenous staff can participate in designing workable evaluation models that are understandable, practical and sustainable, for long-term health promotion programs.

When interventions are designed based on scientific health behaviour change theories and models, it is important that the local staff of CBOs clearly understand how these theories work and how they can be applied in order to achieve expected project outcomes. Theories have to be named and explained to indigenous project staff. Staff knew that they were expected to produce evidence-based outcomes, but did not fully understand how to achieve this. If the scientific theories are not well understood or remain "camouflaged" among all the activities, this can result in several implications affecting health promotion programs globally. Firstly, local CBO staff will fall back on their own indigenous structures and belief models of what a behaviour change should be among their own people. As such, there could be a range of indigenous theories in operation. Secondly, the staff of CBOs are not able to recognise the basis of the interventions.

Although they know that behaviour among their project clients is to be changed, they do not see the long-term health behaviour change among their target groups. Consequently, their perception of behaviour change is distorted, due to the anxiety they feel to show that 'behaviour change' has occurred in the project. As found in this study, CBO staff consider behaviour change as instant, such as emotional expressions (e.g. participants crying during peer education training). According to this perception, a person has changed behaviour because they have expressed the emotion of sadness. The third implication of unclear behaviour change theories is that M&E capacity in program theory will be compromised. If staff are unable to understand the theory underpinning the interventions, the concept of program theory inevitably gets lost in the M&E training. As such, when designing health promotion interventions, formative studies should be conducted to find out if indigenous theories of health behaviour change exist among CBOs. If local theories of behaviour change exist, these theories could be integrated into the program theory used in the project, as it would be assumed that local theories would be better understood by the indigenous staff.

## 7.1 Recommendations

Some recommendations are offered for future work in building indigenous capacity in evaluation. The first recommendation is for further research into the field of capacity building in M&E. Contrary to expectations, this study was not able to identify an explicit theory or model of behaviour change among implementers of HIV prevention programs. However, this study has provided the baseline information needed for future related research on indigenous theories and models of behaviour change towards health promotion. The study provides information that might help to improve the methodology used and highlights the areas in which gaps can be investigated in future studies. Given the demand from funding agencies to produce program results based on outcome indicators, it is perhaps appropriate for policymakers, project managers, and funders to understand why their expectations are not met by community-based organisations. Hence, it is recommended that further research into the understandings of program theory be conducted among public health service providers and donor agencies.

Two recommendations are offered for PNG practitioners in the field of M&E. They are:

i) Review the national M&E training contents used in workshops and provide a shift towards using M&E data for internal project planning rather than for reporting purposes only. Currently, the M&E

training focuses on the data processes (data collection and data flow), and less emphasis on the significance of internal data that could be used to inform programs on their gaps and achievements.

ii) Create more awareness on program evaluation. This needs to be done to generate the demand for ECB from service providers. Previous studies have shown similar results in the lack of M&E capacity nationwide and globally, which has provided sufficient information. This study recommends that M&E practitioners play a more proactive role in building indigenous leadership within the M&E components of projects: leadership capacity of M&E managers, Project Evaluators, and M&E trainers, to coordinate evaluations that are user friendly for CBOs. Leadership roles in M&E may also provide mentoring for junior staff and guide the evaluation process at the service delivery level.

It is recommended that behaviour change interventions in health promotion should be underpinned by health behaviour change theories that are understandable and practical and may include local health behaviour change theories. This means that the behaviour change theories applied to health interventions should be clearly understood by those implementing the interventions, and those using the interventions. It is only when these theories are understood that they can be realistically applied and enforced to achieve the desired health benefits among the users of the health promotion programs.

Public health policymakers should hold service providers accountable for the funding they receive including cost-effectiveness. Public health policymakers can make a significant contribution to the development of ECB among indigenous service providers. When there are stringent policies enforcing the implementation of interventions that are based on program theory, the evaluations that show outcome indicators will consequently reflect value for money. This has to be done using participatory approaches where all stakeholders are involved.

This requirement of measureable outcomes provides an impetus of ensuring the capacity of indigenous service providers is built. Local capacity meets other donor and policy makers' requirements of cost effective evaluation and sustainability. The effective approaches are participatory, theory-based, and should be incorporated into ECB; and resourced as part of health promotion programs.

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**APPENDICES**

## Appendix 1. Ethical Approval from the PNG HIV and AIDS Research Advisory Committee

NATIONAL AIDS COUNCIL SECRETARIAT

PO Box 1345 BOROKO, NCD 121
Papua New Guinea
Telephone: 323 6161 Facsimile: 325 9148

**Research Coordination Unit**

12th May, 2011

**RES 10- 030**

Professor Lohi Matainaho.
Deputy Chairperson
Research Advisory Committee
C/- School of Medicine & Health Sciences
University of Papua New Guinea
P. O. Box 320.
University P. O. NCD

CAREC
Approved renewal.
Please facilitate funding asap
[signature]
17/05/11

Dear Professor Matainaho,

**Subject: Executive approval RES10-030: Lemeki: A formative evaluation of HIV primary prevention In the Northern Province, Papua New Guinea**

The above research proposal (submitted for PhD thesis) was considered by the Research Advisory Committee (RAC) at its meeting on 26th November 2010. The recommendation was for executive approval after revision and resubmission.
The Research Coordination Unit (RCU) is in receipt of the resubmission and has reviewed the proposal.
The following documentation are attached for your perusal:

1. RAC feedback to M Lemeki
2. Revised ethics submission (with covering letter)
3. Approval from University of Queensland
4. Other necessary documents (Oro PAC approval, Consent form, information sheet, CV)

The RCU recommends that Executive approval be granted for this research to proceed.

Yours sincerely,

Thank you.

[signature]

Dr. Wilfred Kuleva
Research Manager

**Executive approval:**

Granted (Tick) ☑ Not granted (Tick) ☐

[signature] Date: 13 May 2011

Professor Lohi Matainaho
Deputy Chairperson of RAC

# NATIONAL AIDS COUNCIL SECRETARIAT

PO Box 1345. Boroko. NCD 121. Papua New Guinea
Telephone: 323 6161 Facsimile: 323 1619 Web: www.nacs.org.pg


**OFFICE OF THE DIRECTOR**

Date: 10 May 2012 **Our Ref: RES 12 024**

To: **Madeline Lemeki**
**Unit1, 145 Butterfield Street, Herston.QLD 4006.**
**Australia**

Dear Ms Lemeki,

**SUBJECT: RES11-024 Capacity building of Theory Based Program Evaluation in HIV Primary Prevention Programs. Oro Province Papua New Guinea**

On behalf of the Research Advisory Committee (RAC) at the National AIDS Council Secretariat (NACS), I write to inform you of the decision made on the above proposal submitted for RAC's consideration. Upon receipt of your research proposal, members of the RAC were asked to peer review your proposal which was then discussed at the last RAC meeting.

The RAC has approved your resubmitted proposal upon accepting your progressive report. You can now continue with your project.

If you have any queries relating to the decision on your proposal, do not hesitate to contact the Research Manager, Dr Wilfred Kaleva (see contact details below).
Best Regards,

**Mr Wep Kanawi CSM OBE**
Director
National AIDS Council Secretariat

## Appendix 2. Ethical Approval from the Behavioural & Social Sciences Ethical Review Committee, University of Queensland.

THE UNIVERSITY OF QUEENSLAND
**Institutional Approval Form For Experiments On Humans Including Behavioural Research**

| | |
|---|---|
| **Chief Investigator:** | Ms Madeline Lemeki |
| **Project Title:** | Capacity Building Of Theory-Based Evaluation In HIV Primary Prevention Programs. Northern Province, Papua New Guinea |
| **Supervisor:** | Prof Maxine Whittaker, Dr Andrew Vallely |
| **Co-Investigator(s)** | None |
| **Department(s):** | School of Population Health |
| **Project Number:** | 2011000481 |
| **Granting Agency/Degree:** | AusAID |
| **Duration:** | 31st August 2011 |

**Comments:**

Expedited review - low risk.

The Participant Information Sheets currently says that "There is NO risk...". Please rephrase to the effect that it is anticipated that participation in this research will involve no added risk above the risks of everyday living.

**Name of responsible Committee:-**
**Behavioural & Social Sciences Ethical Review Committee**
This project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research* and complies with the regulations governing experimentation on humans.

**Name of Ethics Committee representative:-**
**Associate Professor John McLean**
**Chairperson**
**Behavioural & Social Sciences Ethical Review Committee**

Date 29/4 Signature

THE UNIVERSITY OF QUEENSLAND

**Institutional Approval Form For Experiments On Humans Including Behavioural Research**

| | |
|---|---|
| **Chief Investigator:** | Ms Madeline Lemeki |
| **Project Title:** | Capacity Building Of Theory-Based Evaluation In HIV Primary Prevention Programs. Northern Province, Papua New Guinea - 09/02/2012 - AMENDMENT |
| **Supervisor:** | Prof Maxine Whittaker, Dr Andrew Vallely, Dr Maria Donald |
| **Co-Investigator(s)** | None |
| **Department(s):** | School of Population Health |
| **Project Number:** | 2011001114 |
| **Granting Agency/Degree:** | AusAID |
| **Duration:** | 31st December 2012 |

**Comments:**

**Name of responsible Committee:-**
**Behavioural & Social Sciences Ethical Review Committee**
This project complies with the provisions contained in the *National Statement on Ethical Conduct in Human Research* and complies with the regulations governing experimentation on humans.

**Name of Ethics Committee representative:-**
**Associate Professor John McLean**
**Chairperson**
**Behavioural & Social Sciences Ethical Review Committee**

Date 9/02/2012 Signature

## Appendix 3. Reference Letter from Primary Academic Advisor to Conduct Fieldwork in the Northern Province

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

School of Population Health

24th November 2010

Mr Tony Lupiwa
Senior Research Officer,
HIV and AIDS Research Coordination Unit,
National AIDS Council Secretariat,
P.O.Box 1345,
Boroko, National Capital District

Dear Mr Lupiwa

Re: A formative evaluation of HIV primary prevention in the Northern Province, Papua New Guinea. A proposed research study by Ms Madeline Lemeki

This is to confirm that I am the primary supervisor of ms Madeline Lemeki for her PhD studies at the University of Queensland. In this role I confirm that I am supportive of this study, and will continue to provide supervisory support in Australia and in PNG to her work. This will include ensuring that NACS Ethical clearance and UQ ethical clearance are submitted and approved, and that the candidate will fulfil those ethical obligations and work to ethical and cultural standards required for her work.

Yours sincerely

Professor Maxine Whittaker
Director Australian Centre for International and Tropical Health
University of Queensland

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100 YEARS AHEAD